Green Zia Environmental Excellence Program
Achievement-level Application:
LOS ALAMOS NATIONAL LABORATORY
ENVIRONEMENTAL SCIENCE AND WASTE TECHNOLOGY DIVISION

Organizational Overview

0.1 Basic Organizational Description

Los Alamos National Laboratory (LANL) is owned by the US Department of Energy (DOE) and operated under contract by the University of California (UC). The Laboratory covers 43 square miles on the Pajarito Plateau in Los Alamos County, which is located in northern New Mexico. Established in 1943 as part of the Manhattan Project, LANL's original mission was to design, develop, and test nuclear weapons. As technologies, US priorities, and the world community have changed, LANL's mission has broadened to enhancing global security by ensuring safety and confidence in the U.S. nuclear weapons stockpile, developing technical solutions to reduce the threat of weapons of mass destruction, and improving the environmental and nuclear materials legacy of the Cold War. In addition, LANL has become an essential national resource for development and integration of leading-edge science and technology to solve problems of national and global importance, including issues related to energy, environment, infrastructure, and biological security. The Laboratory's vision of future scientific development flows from its ability to address complex problems that require integration of an array of disciplines and a variety of capabilities.

LANL is composed of nearly 30 major organizations, called divisions, including the Environmental Science and Waste Technology (E) Division. E Division is a global leader in the development and implementation of environmental technologies, which solve environmental problems and lead to innovative and effective solutions in the areas of nuclear materials, waste management, and environmental restoration. As a division within the Laboratory organization, E Division specifically supports the Laboratory's vision in three strategic areas: Natural Resources Protection and Restoration, Nuclear Waste and Materials Management, and Repository Science. E Division, led by a division director and his deputy, is organized into groups managed by group leaders or program managers (see Figure 0-1). Each group is subdivided into teams based upon the products and services it provides. Generally, the group leaders give guidance to the team leaders regarding what actions or objectives must be accomplished. It is then up to each team and individual to use good judgment and creativity to determine the most effective way to get the work done. More information on E Division's key functions is available at its homepage: http://em.lanl.gov/**.**

E Division's nuclear materials and waste management capabilities are critical to future mission programs at the Laboratory and best serve customer requirements when they are leveraged with capabilities of other technical divisions. E Division's work supports the Laboratory's commitment to managing the entire life cycle of nuclear materials from generation to permanent disposal while understanding and safeguarding the natural environment from a local to a global scale.

The Laboratory is committed to achieving excellence in environment, safety, and health (ES&H). In meeting the moral imperative to protect employees and the environment, the Laboratory strives to achieve: zero injuries and illnesses on the job, zero injuries and illnesses off the job, zero environmental incidents, zero ethics incidents, zero people mistreatment incidents, and zero safeguards and security incidents. These are referred to as the six zeros. E Division strives to support these goals by setting division goals and deploying them to the groups (see Figure 0-2).

In FY2001, E Division employed 152 full-time and 14 limited-term UC employees along with 80 on-site contractors and 36 students. Figure 0-3 shows the this makeup of the division workforce. Figure 0-4 shows the education levels of the workforce, and Figure 0-5 shows the work assignments/job classifications of the division workforce. Figure 0-6 shows the ethnicity of E Division workers, and Figure 0-7 shows gender.

LANL's budget for Fiscal Year (FY) 2001 was approximately $1.7 billion. For FY 2001, E Division's budget was $135 million, roughly 8% of the Laboratory's total revenue. E Division funds are used for program development; to manage environmental restoration projects; to develop, coordinate, and execute waste management activities; and to actively

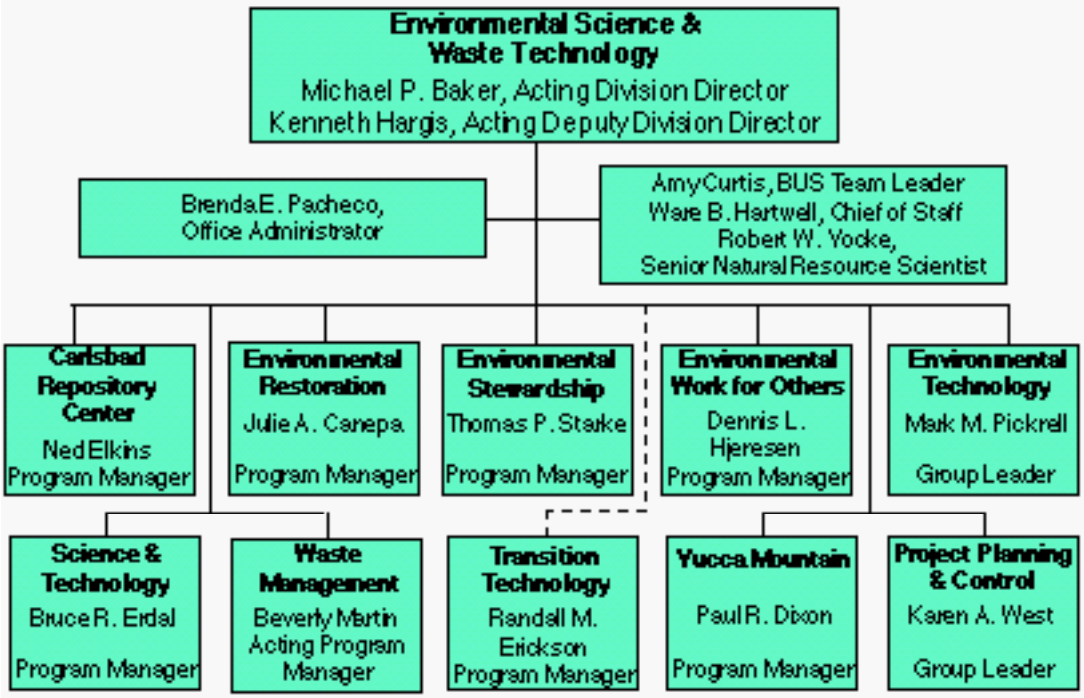

Figure 0-1. E Division organizational chart.

Laboratory Goals	**E Division Strategic Plan Goals**
Zero environmental incidents, zero injuries on the job, and zero injuries and illnesses off the job	1. Execute clean-up activities to protect human health and the environment from future exposure to hazardous, radioactive, and mixed waste from historical treatment, storage, and disposal practices at the Laboratory.
Zero injuries on the job and zero injuries and illnesses off the job	2. Safe, compliant, and cost-effective work-off of legacy waste presently stored at the Laboratory.
Zero environmental incidents	3. Assist the Laboratory to produce zero avoidable waste, facilitate the use of minimum natural resources (especially energy and water) at the site, and the Laboratory procures only environmentally preferable products.
Zero environmental incidents	4. Deploy technologies that address environmental needs at the Laboratory and elsewhere in the DOE Complex as well as the United States and the world.
Zero injuries on the job, zero injuries and illnesses off the job, and zero safeguards and security incidents	5. Continue to implement institutional security and Integrated Safety Management (ISM) requirements.
Zero ethics incidents, zero people mistreatment ethics	6. Develop appropriate limited-term, contractor, and student staff into long-term permanent UC positions.
Zero ethics incidents, zero people mistreatment ethics	7. Maintain diverse workforce providing equal opportunity for all.
Zero environmental incidents	8. Continue to participate in work around the region that furthers the sustainability of the region both economically and environmentally.

Figure 0-2. E Division strategic plan goals incorporating LANL's six zeros.

pursue pollution prevention (P2) opportunities. More than half of E Division's budget is allocated to subcontractors who provide environmental restoration and waste management services for the Laboratory.

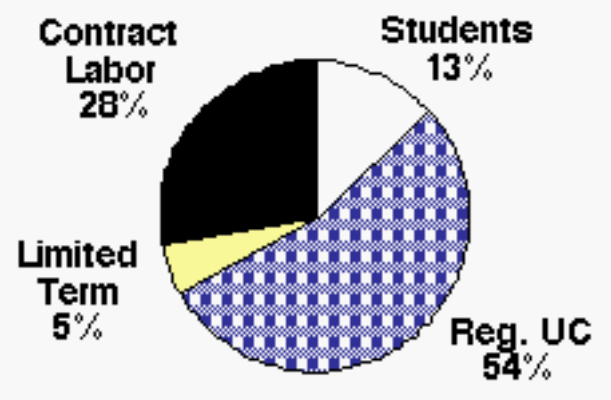

Figure 0-3. Makeup of E Division workforce.

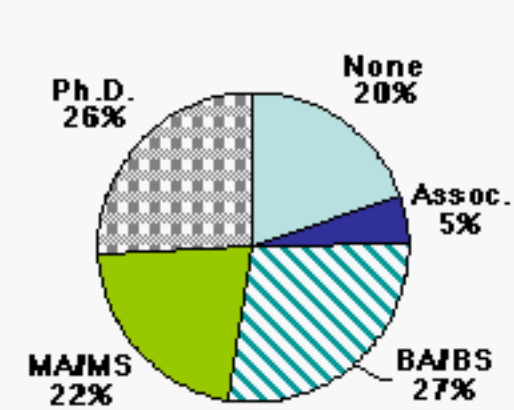

Figure 0-4. Education levels of staff.

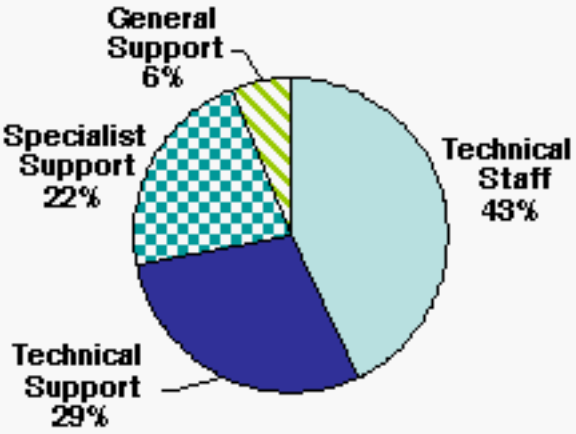

Figure 0-5. Work assignments of staff.

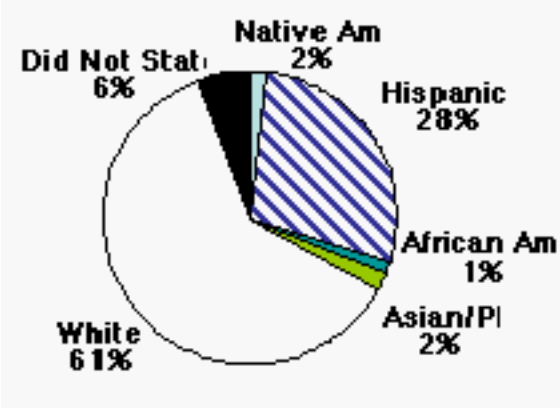

Figure 0-6. Ethnicity of staff.

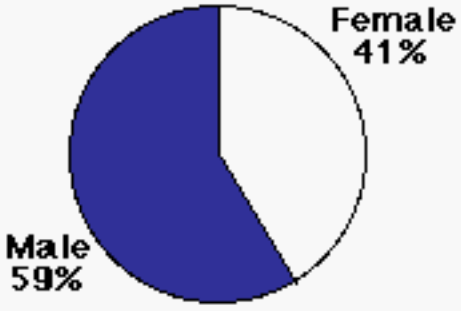

Figure 0-7. Gender of staff.

Federal regulatory agencies with the most encompassing environmental oversight for various LANL operations include the Occupational Safety and Health Administration (OSHA), the Environmental Protection Agency (EPA), and DOE. The New Mexico Environment Department (NMED) also oversees and regulates LANL activities.

In addition to regulatory expectations, LANL operations, including E Division's, are shaped and evaluated by contractual requirements negotiated by DOE, UC, and LANL. A subset of these requirements, revised annually, are contained in Appendix F of the operating contract and provide a broad range of specific goals, measures, and evaluation criteria. Appendix F serves as a key method of determining both customer expectations and organizational performance. Item 3.1 contains more details about Appendix F. E Division is the responsible LANL organization for seventeen of the Appendix F measures and significantly contributes to institutional performance in many of the other 80+ measures.

Figure 0-8 provides an overview of E Division's environmental management system. This figure shows the Laboratory's ISM continuous improvement system as the integrating system comprising many subsystems and activities (many of which use similar systems or five-step processes to improve).

0.2 Customer and Stakeholder Requirements

The Laboratory's primary customer, DOE, focuses on four business areas: national security, energy resources, environmental quality, and science and technology. DOE has outlined seven objectives for environmental quality. The Laboratory and E Division support these areas as described in Figure 0-9.

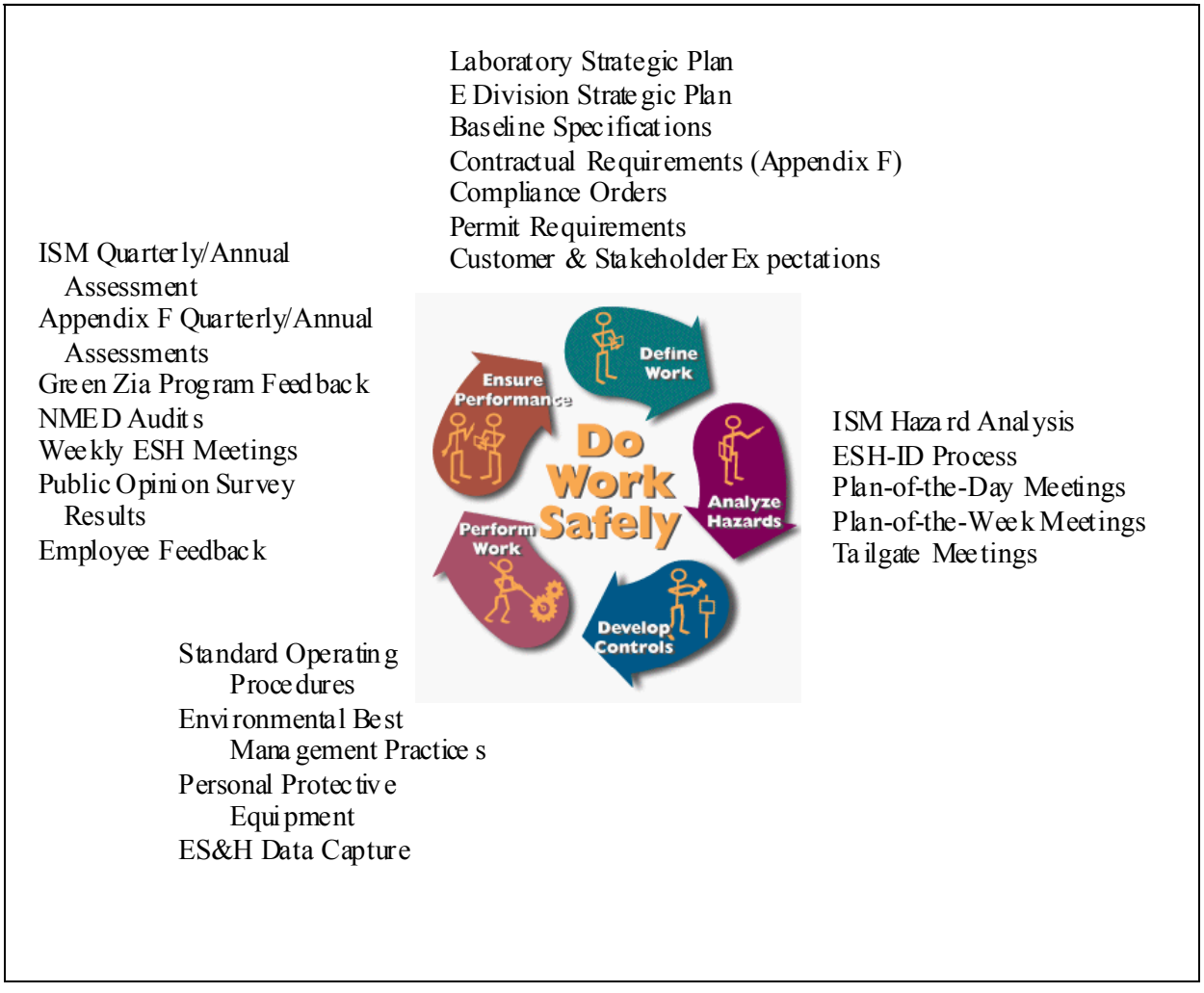

Figure 0-8. E Division's environmental management system.

DOE Objective	E Division and the Laboratory's Contribution
Reduce the most serious risks from environmental legacy of US nuclear weapons complex	The Laboratory's scientific developments have been applied at sites such as Hanford and Rocky Flats for cleanup and to develop a path forward for waste disposal.
Environmental restoration	The E Division's Environmental Restoration (E-ER) Project strives to complete the Laboratory legacy site cleanup by 2015.
Safely dispose of waste generated by nuclear weapons and civilian nuclear research	E Division programs established the Laboratory as the first facility certified to ship to Waste Isolation Pilot Plant (WIPP) and has transferred that technology to other DOE sites. E Division is also leading a project to dispose of activated sources from across the nation.
Prevent future pollution	**E Division's Environmental Stewardship Office (E-ESO) leads the work of minimizing waste, conserving natural resources and preventing pollution at the Laboratory.**
Dispose of high level radioactive waste	E Division provides essential scientific support to the Yucca Mountain Project.
Reduce the life-cycle costs of environmental cleanup.	Various projects in E Division deploy science and technology to drive down costs of the environmental restoration effort.
Maximize beneficial reuse of land	The E-ER Program works with neighboring communities to identify and cleanup sites.

Figure 0-9. DOE's Environmental Objectives.

The DOE contract with UC includes annual performance objectives for quality of science and for quality of operations and administration. Appendix F of this contract reflects DOE's goals for areas such as environmental restoration, waste minimization, water and electricity conservation, affirmative procurement, and general environment, safety and health (ES&H). Future contracts are expected to include goals for toxic chemical inventory reduction. Permit requirements for reports compiling Laboratory progress are prepared and submitted both quarterly and annually to DOE and NMED. A variety of permit documentation and various reports on environmental performance at the Laboratory are required by regulatory agencies. One major deliverable is the annual *Environmental Surveillance Report*, which provides a summary of monitoring results and regulatory compliance status. Environmental permits also require LANL to report any off-normal events.

In addition to the measures included in Appendix F, E Division uses a variety of LANL institutional systems to structure the Division's operations such as the Green Zia systematic tools, road mapping, lessons learned, and ISO 14001 gap analysis (see Items 6.1 and 6.2). LANL's Integrated Safety Management (ISM) Program, in its broadest scope, serves as a basis for the institution's environmental management system because safety is defined to include safety to the environment (see Category 1.1). LANL's Performance Management System (see Item 5.1) helps leaders establish clear performance expectations for employees and ensures those expectations are aligned with organizational goals and values.

A secondary group of customers includes other LANL divisions and organizations for whom E Division provides waste management coordination and appropriate science and technology. One major stakeholder group is division employees. LANL mechanisms such as the annual Employee Checkpoint Survey (see Item 3.1) and the Upward Appraisal Program (see Item 5.2) allow E Division leaders to evaluate employee satisfaction with division performance. Other stakeholders are the University of California (UC), NMED, and the general public. E Division conducts frequent interactions with UC and NMED representatives both formally and informally (see Item 3.1). One major avenue for interactions with the public is through the Northern New Mexico Citizens Advisory Board (CAB). These customers' expectations are a general commitment to safe operations and efforts to minimize waste generation and consumption of resources. Figure 0-10 summarizes E Division's major customer segments and their requirements.

The facilities where E Division conducts its activities range from traditional office space to Category II Nuclear Facilities (requiring extreme rigor to manage the health and safety systems). These facilities are overseen by facility managers (FMs) who have direct accountability other divisions in the Laboratory, and a formal understanding (called a facility/tenant agreement) is developed between E Division and the FM. The FM is responsible for the safety "envelope" that the tenant division works within. E Division, as a tenant, specifies exactly what kind of work will be conducted in the facility to assure that work is consistent with the facility's design and safety features. This close working relationship requires frequent meetings and coordination for changes when work scope changes or the facility systems require repair or improvement (thereby perhaps requiring a stand down of operations until the improvement is made). Equipment used by E Division includes traditional office and chemistry laboratory set-ups. It also includes state-of-the-art systems, and in many cases one-of-a-kind systems, to conduct experiments or conduct waste operations. It includes non-destructive assay

Customer Segment	Key Environ. Requirements	Determined by
DOE	• Deliver science and technology solutions to pollution problems. • Restore the LANL environment by remediating/ removing legacy waste. • Operate in an environmentally wise manner	• Appendix F
Technical Programs and Support Divisions within LANL	• Use good business practices (cost effective, timely, productive) • Help LANL meet key environ-mental goals	• Appendix F • LANL Goals
Division Employees	• Provide a safe and healthy work environment • Help LANL meet key environ-mental leadership goals	• Appendix F • LANL Goals
Stakeholders (UC, NMED, the general public)	• Use good business practices (cost effective, timely, productive) • Help LANL meet key environmental goals	• Appendix F • DOE Orders • CAB Meetings and updates

Figure 0-10. E Division key customer segments and requirements related to environment.

equipment that allows the analysis of the contents of waste drums without opening them, as well as highly sensitive equipment that track the movement of radionuclides through geologic formations.

0.3 Supplier and P2E2-Partnering Relationships

Over half of LANL's $1.7 billion operating budget is for the acquisition of goods and services necessary for operations. LANL's Business Operations (BUS) Division is responsible for the oversight of these major subcontracts. E Division works closely with BUS to ensure that waste elimination is part of our working relationship with our suppliers (see examples in Item 3.2). E Division's key suppliers are Johnson Controls Northern New Mexico (JCNNM), which supplies craft labor for the Laboratory. Seven other environmental contractors (Washington Group, Los Alamos Technical Associates, International Technology Corporation, Weston, Waste Management Corporation, Benchmark Environmental Corporation, Vance & Associates, Inc.) provide staff and expertise and collectively account for over $16 million of E Division's expenditures.

0.4 Competitive Situation

Despite their fifty-year relationship with DOE, E Division and UC do not have a special right to conduct operations at LANL. UC, as the contracting entity to DOE, and E Division, as an organization that carries out operations, must continuously prove their worth. In the late 1990s, E Division programs were, in fact, part of the "off-ramp" evaluations DOE established to determine whether to maintain the UC contract. Partly because of E Division's demonstrated continuous improvement, this threat to continuation of the DOE/UC contract was successfully overcome in 2000.

Because both DOE and UC use the Appendix F measures to evaluate performance at all three research and development laboratories managed by UC—LANL, Lawrence Livermore National Laboratory (LLNL), and Lawrence Berkeley National Laboratory (LBNL)—the annual evaluations provide a means of comparing performance levels among the three institutions. Although not all Appendix F measures are applicable to all three laboratories, the side-by-side evaluation each year does provide useful relative information. Thus, as evaluated by key customers through Appendix F, both LBNL and LLNL can be loosely considered competitors. Of course, other university systems and companies such as Lockheed Martin (managers of Sandia National Laboratories) that contract with DOE to operate research and development facilities can be considered competitors as well.

0.5 Strategic Context

Recent improvements to the institutional ISM System, including nested safety committees (see Item 1.1), allow all LANL units, including E Division, to provide input to the Laboratory's identification of most significant environmental issues. Similarly, the ISM System allows key institutional issues related to the environment to become the focus of all work units, including E Division.

E Division has also begun focusing on several environmental initiatives recently implemented across LANL. In several cases E Division was a driving force in starting these initiatives for the entire institution.

- setting up recycle bins for recycling of unwanted mail through a process coordinated in BUS mail services;
- eliminating junk mail through a program call "Stop Mail J568;"
- reducing paper use through double-sided copying, use of recycled paper, and use of electronic documents;
- promoting general recycling through increased emphasis on awareness programs;
- encouraging energy efficiency through awareness and improved equipment purchases;
- working with the Crowne Plaza Hotel in Albuquerque to ensure "green operations" during the June 2001 DOE P2 conference (see Item 3.2);
- conscientiously attempting to purchase environmentally preferable products; and
- developing a grassroots "Green Team" that works to create baselines for waste streams and to identify ways to reduce or eliminate those wastes.

As a government-owned, contractor-operated nonprofit organization, many of the financial measures and goals typical of the private sector do not directly apply to E Division. For example, the division receives its funding from DOE based upon that organization's allocation of Congressionally approved funding. In some years, the level of funding is not set until months after the start of the fiscal year, and even then some funding may be shifted during the year itself. Funding levels change from year to year and even within any one year usually have little relationship to E Division performance but rather reflect changing priority or focus within DOE. Although the division must ensure that funds are spent properly, profit is never a motive. In fact, when work is performed successfully, the division's funding may be changed or money may be reallocated to other work. As a consequence, financial measures tend to focus on the relation of cost to baseline plans and scheduled work.

Starting in January 2002, E Division was involved in discussions regarding the best LANL organizational structure to ensure excellent performance of functional environmental tasks. As a result of those discussions, LANL senior managers initiated a reorganization of E Division and several other LANL units in March. As a result, E Division has ceased to exist in its former state but now forms a significant component of an enlarged LANL division—Risk Reduction and Environmental Stewardship Division—with new leadership and slightly altered mission and responsibility. However, the division's commitment to continuous environmental improvement will remain the same.

1 Leadership

1.1 Organizational Leadership

The leadership system that supports environmental excellence in E Division begins with the director of LANL who, in 1998, issued a vision for LANL that included zero environmental incidents. Figure 1-1 shows the "six zeros" which constitute LANL's highest-level goals. A comprehensive, proactive, ethics-based system cascades down from these leadership goals. The E Division Director has established the following additional environmental goal for the division: ***In 2 years, E Division will set the division-level standard for environmental excellence performance***.

The E Division director and his deputy, two group leaders, and eight program managers make up the division's senior leadership team. Management sustains effective leadership throughout the division by

- promoting continuous improvement in operations and environmental performance;
- ensuring employee performance plans are aligned with business plan goals; and
- cascading information from management meetings to employees and teams.

The performance of E Division's management team is evaluated by customers through the Appendix F process (see Item 3.1), by LANL senior leadership through the Performance Appraisal System (see Item 5.1), and by employees through the Upward Appraisal Program (see Item 5.2). Results from these evaluations become agenda items for discussion at weekly management meetings and quarterly division all-hands sessions.

Division managers guide the organization by advocating uncompromising safety, by promoting P2E2 and resource conservation, by modeling corporate citizenship, and by recognizing and rewarding innovation and efficiencies in productivity.

Zero injuries or illnesses on the job
Zero injuries or illnesses off the job
Zero environmental incidents
Zero ethics incidents
Zero people mistreatment incidents
Zero security and safeguards incidents

Figure 1-1. LANL's "six zeros" goals.

The Laboratory also uses Appendix F to demonstrate commitment to continuous environmental improvement. In partnership with DOE, UC has developed specific overall performance goals, which emphasize results most important to DOE on an annual basis. These goals include environmental restoration, waste management, and environment, safety, and health. Item 3.1 provides more details about Appendix F.

An integrating framework that E Division and LANL overall use as an environmental management system is ISM. The broad definition of "safety" encompasses all aspects of environment, safety, and health—including P2E2 and waste minimization (refer to Figure 0-8). The term "integrated" is used to indicate that the safety management system is a normal and natural element of the performance of work. Safety isn't a workplace addition; it is how LANL does business. ISM supports LANL's goal "to accomplish its mission cost-effectively while striving for an injury-free workplace, minimizing waste streams and avoiding adverse impacts to the environment from its operations." ISM implementation is a major emphasis at LANL, and senior leaders formally review progress toward full implementation on a quarterly basis.

The ISM system includes Laboratory Performance Requirements (LPRs), internal requirements governing the performance of work that are drawn directly from legal or contractual requirements. LANL has grouped the LPRs into six categories, including worker health and safety and environmental protection. Laboratory Implementation Requirements (LIRs) stem directly from the LPRs and provide detailed mandatory implementing requirements for the safe and environmentally responsible performance of work (see Figure 1-2). To ensure that all E Division employees can understand LPR/LIR guidelines and performance requirements that apply to their work, the division encourages workers to refer to relevant LIRs that are posted on the LANL electronic ISM home page (see Figure 1-3). Division-specific safety and environmental information is posted on the E Division web page. The division also has on its staff, at the division-office level, a specialist in ISM whose job is to help the division as a whole and all its employees understand and use relevant safety and environmental guidance. The division also sponsors an ISM Working Group that meets weekly to review division performance, to create lessons learned, and to identify opportunities for improvement. The ISM Working Group is composed of representatives of all E Division groups and program offices and forms one link in the chain of LANL "nested safety committees." These committees, based on the concepts of worker involvement and management commitment, are designed to pass important safety information both from management down to workers and from workers up to multiple layers of management. Figure 1-4 shows E Division's nested safety committee plan.

The ISM Working Group sessions focus on expectations and progress toward goals, as well as environment, safety and health (ES&H) issues. For example, ergonomics is a frequent topic at these meetings, as is waste management. In addition, senior leaders review action plans for all projects, including process improvement efforts, to ensure work is being completed as scheduled and budgeted or to determine necessary adjustments to the plans.

Senior leaders also conduct regular management walkarounds. These informal but structured reviews allow leaders to observe working conditions throughout their areas of responsibility, to talk informally with employees, to recognize exemplary work and workers, and to note potential areas for improvement. LANL has created nine categories of guidance cards, including environmental protection, that provide suggestions on the types of observations managers should make during walkarounds. For example, guidance cards suggest that managers ask the following questions:

- How have the roles, responsibilities, authorities, and accountabilities for accomplishing tasks been communicated to all levels of employees at LANL (includes subcontractors)?

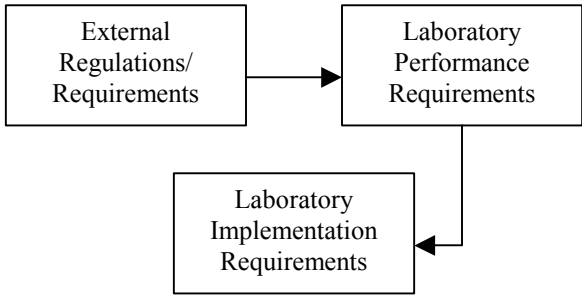

Figure 1-2. Translation of legal requirements into LANL performance standards.

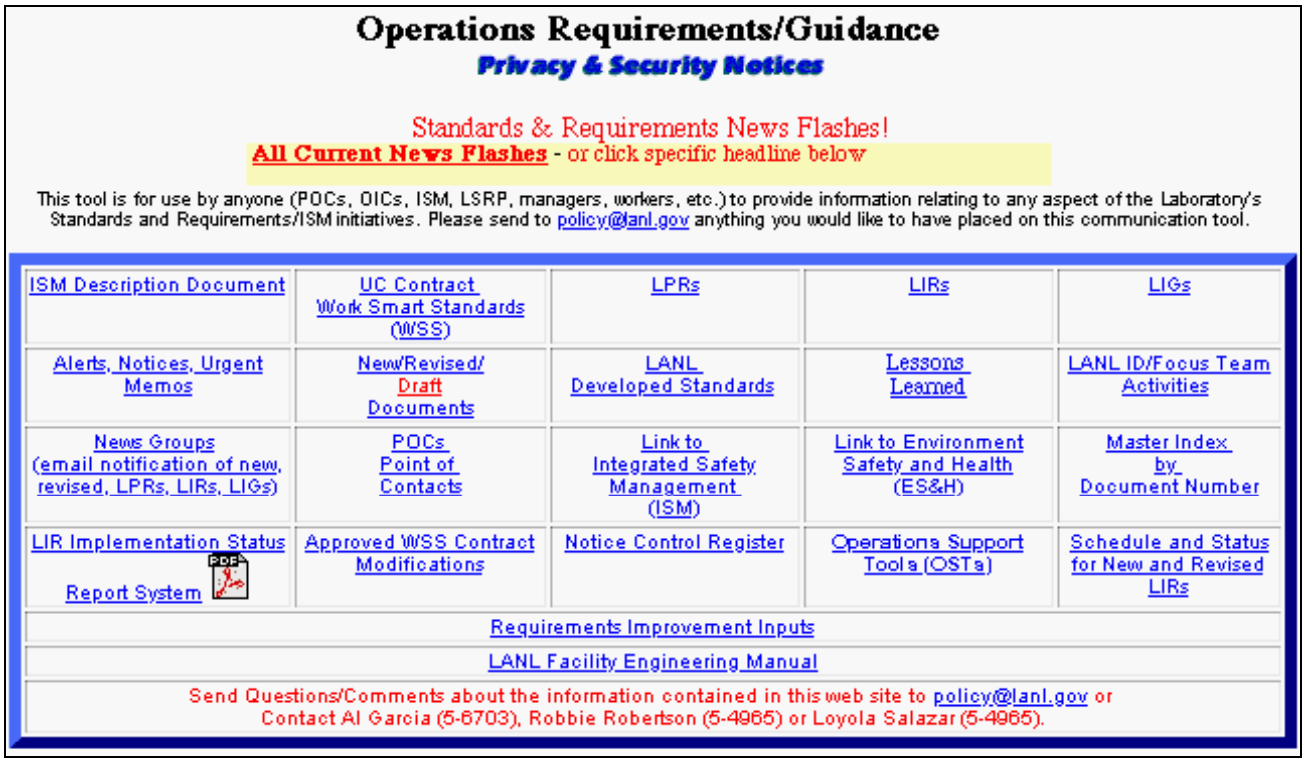

Figure 1-3. LANL's web page for operational requirements documents.

- What monitoring and control systems keep the organization/program on track so goals are met and continuous improvement opportunities are sought?
- What kinds of waste does this program/project/facility generate?
- How often do you do a self-assessment of your waste minimization activities? Have you noted any problems? What changes or improvements have you made?
- Did you discuss ways to reduce the amount of waste generated before you started the job?

Walkaround findings in all categories, including the environmental category, are tracked and analyzed by means of a web-accessible database and are reported to the most senior LANL managers by the Deputy Laboratory Director for Operations. Findings also become part of the discussions within and across nested safety committees and are included in strategic or action plans as appropriate. In 2001, E Division managers performed 123% of the number of assigned walkarounds; managers formally walked E Division work spaces 119 times.

E Division has also chartered a Green Team, charged with identifying and implementing P2E2 initiatives across the division. Like the ISM working group, the team includes representatives from across the Division. Initiatives that have been undertaken include structured communication plans to share environmental information and several projects aimed at reducing the division's overall environmental impact.

Information regarding organizational goals and current progress cascades to individual employees through the management structure. In addition to the quarterly all-hands meetings already mentioned, program managers and group leaders meet weekly with the Division Director, both individually and in all-manager meetings. These sessions focus on expectations and progress toward goals. ISM is a standing topic at these meetings. In addition, senior leaders review action plans for all projects to ensure work is being completed as scheduled and budgeted or to determine necessary adjustments to plans. Meeting notes from the all-manager meetings are posted weekly on the division's web page and are included in an electronic mailing, *E Division Weekly News*, that goes to all division employees. The publication also regularly includes health and safety tips as well as suggestions minimizing both organizational and individual

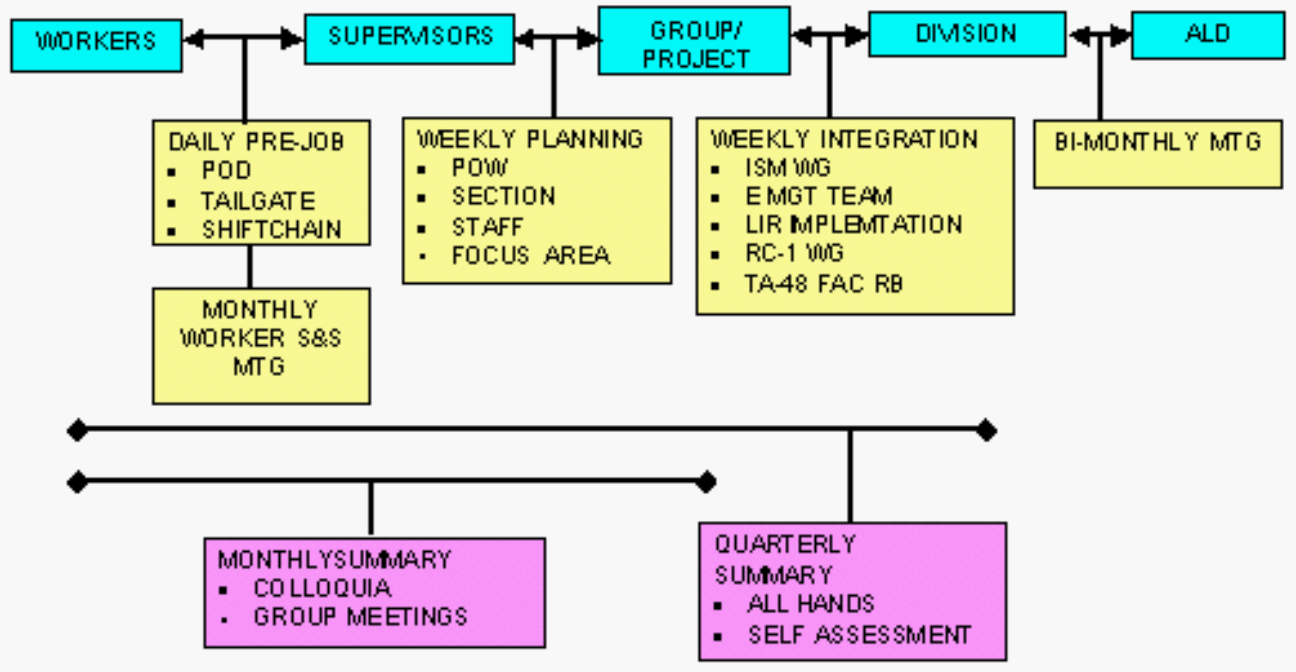

Figure 1-4. E Division's nested safety committee structure.

environmental impact. Environmental information is also disseminated through the LANL electronic newspaper, the Newsbulletin. Articles in this publication highlight environmental accomplishments and waste minimization successes.

E Division's management system is based on frequent and open communication. The division communicates with DOE, its primary customer, to improve environmental performance through Appendix F reporting. Along with other LANL divisions, E Division issues a report with supporting data on ES&H issues. This report is distributed to Environment, Safety, and Health (ESH) Division where it is combined into a Labwide report. Not only does DOE use this report to measure performance of the Laboratory; the Laboratory also uses it to measure its own performance. E Division uses Appendix F to communicate its successes in environment, safety, and health and uses the quarterly review meetings with DOE to gain support and possible funding for projects. These meetings provide opportunity for management to communicate successes and request feedback from DOE leadership.

E Division communicates with UC primarily through the Appendix F process. UC representatives receive the same reports as DOE and are also involved in the quarterly meetings. In addition, E Division provides quarterly information to the UC oversight panel responsible for monitoring LANL's ES&H performance.

E Division's leadership also communicates environmental performance and success to NMED by meeting with the Department's Secretary quarterly. These meetings, which also include representatives from DOE and the EPA, provide a forum for frank discussion of expectations and capabilities.

Open communication is essential with employees as well. Based on results of a division-wide communication survey in the fall of 1999, E Division developed an action plan that is being implemented to address areas for improvement. Focus group sessions are held every four to six months to insure continuous improvement in communications.

The Northern New Mexico CAB is a community advisory group that provides advice and recommendations to the Environmental Management sector of DOE about environmental restoration and waste management at LANL. Members of the CAB seek to understand the complex array of activities, waste types and sources, monitoring and cleanup technologies, regulatory requirements, public perceptions, and political jurisdictions involved in this effort and then develop recommendations that weave together those factors into something useful to the DOE and LANL. LANL has one ex-officio member of the CAB, the director of E Division, who provides input and information at each of the monthly meetings held at various locations across Northern New Mexico.

The division also maintains a web site with a wide range of detailed available information for employees, customers, suppliers, and stakeholders. By using photographs and text as well as frequently updated statistics, E Division keeps all parties well informed of current progress and plans. Most program offices within E Division also have their own web sites and provide extensive information on status of current projects, regulatory controls that impact operations, schedules for public meetings, and names of contacts. In addition, E Division has direct contact with stakeholders through site tours. Additionally, information is disseminated via written reports, press releases, fact sheets, briefings to groups and agencies, and public meetings.

E Division managers set organizational direction at annual strategic planning sessions (see Item 2.1). These sessions include a review of data and evaluation of past performance, including safety and environmental performance. The division's strategic goals, action plans, and targets derive from the needs and expectations of all key customer groups as determined from LANL goals, Appendix F contractual performance measures, and division performance results.

Because it is part of the larger LANL organization, E Division's exclusive interaction with the public related to environmental issues is somewhat limited. LANL has designated the Community and External Relations Division to routinely handle interactions with the public. Presentations, discussions, and workshops specifically focused on environmental issues are typically coordinated through LANL's ESH Division. Other community interactions take place through the many integrated outreach programs of LANL. E Division is involved and/or represented in all of these institutional outreach activities.

1.2 Community Leadership

Laboratory strategic planning efforts specifically address increasing public trust and confidence through corporate and personal candor, integrity, operational excellence, community outreach, and philanthropic participation in northern New Mexico. The Laboratory and E Division leadership encourages staff to invest themselves in local and regional projects and events that strengthen the economy, environment, and quality of life, and to assist state and local agencies with solutions to difficult technical problems. Appendix N of the UC contract with DOE supports local outreach to ensure the Laboratory is a good corporate neighbor who provides technical assistance for activities which have a broad regional impact.

In 1997, E Division formed a Regional Involvement Leadership Team (E-Team) for Sustainability. In support of the Laboratory’s mission, this team developed the following vision: “We are stewards of natural, operational, and human resources; we are an integral component of the prosperous northern New Mexico community, which preserves cultural and environmental values; and we are partners in the regional economy and contribute scientifically to understanding and solving energy and environmental problems.”

Since 1997, E Division has co-sponsored several all-day workshops on sustainability for the region. Presentation topics included P2, sustainable design, strategic sustainability, water conservation, conserving electricity, DOE sustainable development efforts, and conserving bio-diversity. Participants included state and federal agencies, grass-root organizations, policy makers, private industry, and the community at large.

E Division also annually sponsors a Student Conference on Sustainability. Students, staff members, and sustainability experts come together to discuss environmental concerns, issues, and success stories. The conference also includes a sustainable design contest to deal with current issues. For example, last year student participants focused on the issue of building and sustaining community in Northern New Mexico. In 2000, the conference participants evaluated the issue of massive construction plans on the LANL site; the Laboratory used results of the design contest and implemented several recommendations.

E Division representatives also participate in an ongoing local sustainability working group, “Vision Los Alamos.” This group supports work to develop long-term solutions to problems such as open space, water utilization, and inter-

community relationships in Los Alamos and the larger region. For example, the group supports the Community Agriculture Cooperative, which includes organic farmers in the Espanola Valley. In partnership with other area leaders, E Division also participated in the 1999 National Town Meeting for a Sustainable America, sponsored by the President's Council on Sustainable Development.

As a member of the shared community and to help preserve the choices of northern New Mexico, E Division employees also participate in the following major regional initiatives:

Governor Gary Johnson's Blue Ribbon Task Force on Water: Executive Order 99-07 established the Task Force and charges the Task Force with reviewing current water policies and laws implemented within the State of New Mexico, recommending changes to existing water policies and laws, and proposing new policies and laws to the Office of the Governor. The Task Force emphasizes long-range planning relating to water use within this State. E Division employees co-chaired this group and served as technical advisors to the task force. The Task Force is comprised of representatives from the following sectors: municipal, agriculture, acequia, water law and administration, industry, Native American, environmental, mineral extraction, economic development, and real estate. The Task Force, with its varied stakeholder interests, has reached consensus in several areas and has provided science-based recommendations to the Governor on funding for the Office of State Engineer, water conservation and credits, instream flow, domestic wells, watershed management, and long-term planning. In addition, at the recommendation of the Task Force, the Governor is staffing his office with a special assistant to coordinate water-related activities statewide from the Governor's Office. The Task Force is also working with Southwest Strategy, a joint federal office that uses collaborative approaches to resolve natural resource and cultural resource issues in Arizona and New Mexico.

J***emez y Sangre Water Planning Council:*** The original impetus for regional water planning came in 1987, when a federal court ruled New Mexico's prohibition of out-of-state transfer of New Mexico ground water was unconstitutional. As a result of this ruling, it became evident New Mexico must actively plan for its water future. The resulting plans, with their forty-year horizon, will help to secure water supply continuity for future generations. Regional water planning includes:

- inventorying quantity and quality of water resources;
- projecting water resource demands under a range of conditions; and
- determining the manner in which water requirements for the projected demands might be met with management and conservation of water supplies available to the region under existing rights, water supplies, interstate agreements, and court decrees.

As Laboratory lead in the regional water planning effort, E Division is providing in-kind services of $200,000 during the 1999-2001 period. Two Division staff members represent the Laboratory at monthly Council meetings. Some of the staff serve on the executive committee and public involvement subcommittee. Others serve on the executive committee and technical subcommittee.

New Mexico Water Summit: The E Division Regional Involvement Team participated in the New Mexico Water Summit 1: Enlibra Workshop (October 25-27, 1999). As a result of the Summit, the Water Summit Steering Committee is acting on the following programmatic initiatives: instream flow, water quality, and watershed management. The Regional Involvement Team is also providing logistical and administrative service resources for on-going Summit-related efforts.

New Mexico Green Zia Environmental Excellence Program: E Division supports and participates in the State of New Mexico's Pollution Prevention Advisory Council, which develops statewide programs and collaborative projects with large and small businesses. Since its inception in late 1998, the Council has developed and obtained grant funding for the following:

- technical P2 resource center;
- Green Zia Environmental Excellence Program fashioned after the Malcolm Baldrige Quality Award program;
- industry-specific process tools and fact sheets to facilitate waste minimization; and
- training program for using standardized waste minimization tool set developed by Harvard's Robert Pojasek.

E Division employees also served as examiner trainers, examiners, and judges in the Green Zia Program's first year. From the lessons learned from 22 organizations participating in its inaugural year, a core team of four individuals from across the state—including two E Division staff members—was formed in the fall of 1999 to evaluate and improve the program. E Division staff invested many volunteer hours so the program now used is streamlined and tailored to New Mexico businesses, which tend to be small and lack resources for significant investments in P2. In addition, E Division has placed graduate students (in public policy, chemistry, and journalism programs) to support NMED in developing specific tools to expand the usefulness of the Green Zia Program across the state. Their efforts have resulted in the development of industry-specific P2 checklists, systems flow charts, and promotional literature about the program.

E Division serves as the focal point for LANL involvement in the Green Zia Program. In 1999 two sections of E Division submitted and won Green Zia Awards at achievement and commitment levels. The Division also consulted with LANL's Dynamic Experimentation Division, which submitted an application and received commitment-level recognition. In 2000, because of E Division's ability to generate increased interest in environmental performance, the number of LANL organizations conducting self-assessments for Green Zia recognition grew to seven. Three earned achievement-level recognition and four earned commitment-level recognition. Last year, through E Division's efforts to move Green Zia participation to larger organizational units, five LANL divisions participated, representing 20% of the entire LANL workforce. In 1999, E Division encouraged five people from LANL and their subcontractors to participate as Green Zia examiners. In 2000, ten people participated, including two as senior examiners and one as the lead judge. Last year eight people from LANL and associated subcontractors served as judges and/or examiners.

E Division's long-term goal is to help LANL achieve the Green Zia Excellence level as an institution. Figure 1-5 illustrates the Laboratory's plan to integrate the Green Zia approach. Participation in this statewide program demonstrates publicly E Division's and LANL's commitment to environmental excellence. The annual self-assessments are posted on the publicly accessible portion of the division's web page. Thus, the division not only demonstrates its commitment but seeks to serve as a role model for other New Mexico organizations.

In addition to the self-assessments and award applications, since 1999 the Division's Environmental Stewardship Office (E-ESO) has lead the effort in using the Green Zia tools on projects throughout the Laboratory. E-ESO had the Green Zia tools written into the Appendix F performance measures to ensure that each year the Laboratory completes a certain number of tools applications. Since 1999, E-ESO has used the tools on sixteen different projects. For 2002, in order to achieve an "outstanding" rating, E-ESO will use the results from seven previous analyses to implement actual environmental performance improvements.

One of E Division's main methods for communicating with the community is presentations to the CAB (see Item 1.1). CAB meetings are held bimonthly to update citizens about E-ER and E Division's Waste Management (E-WM) Program objectives and environmental issues. Further, E Division has regular availability meetings with elected officials in order to understand community needs. These meetings provide an opportunity for the community leaders to meet with LANL and DOE officials and discuss environmental issues. In addition, E Division encourages NMED, pueblo leaders, and elected officials to provide community input.

Because customer input is key to success, E Division uses and solicits customer feedback through meetings to demonstrate current E Division projects and by volunteering in the community. To further understand public perception, between 1990 and 1998 LANL conducted annual surveys of public opinion. The resulting reports profile New Mexico residents' views and identify results from specific geographic areas around the state. In addition to asking about general

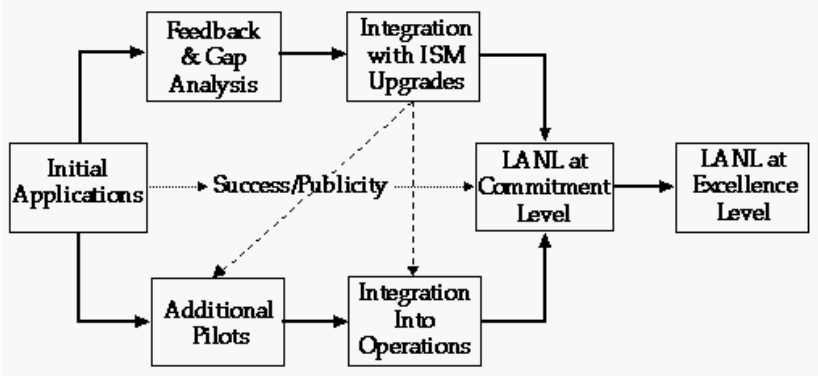

Figure 1-5. Deployment of Green Zia approach.

perceptions of LANL, the survey specifically asks respondents their opinion of LANL's environmental responsibility. Results from the survey are recorded, analyzed, reviewed, and used for planning future activities. A modified survey used since 1998 no longer calls for evaluation of environmental performance but does provide respondents with an opportunity to comment on environmental issues. As discussed in Item 7.3, results regarding LANL's involvement in the community and region are highly favorable.

A key aspect of LANL procurement, including that of E Division, is to support, whenever possible, local vendors, especially small businesses and those owned by minorities and women. Each year the BUS Division Small Business Office (SBO) establishes socioeconomic goals and northern New Mexico procurement goals. These goals, which the LANL substantially meet in both 2000 and 2001, identify percentages of procurements or total procurement dollars to be spent with specific categories of vendors. Since 1996, LANL expenditures with Northern New Mexico vendors has increased over 89%. The SBO also provides guidance to local businesses to help them meet increasingly stringent LANL expectations. E Division provides the SBO with information to pass on (such as how to use/provide products with recycled content and how to establish proactive P2E2 programs) so that local product and service providers can make themselves more attractive. E Division managers and administrators also interact with the SBO director to learn how to improve division procurement rates from local vendors.

An example of E Division's focus on the local community is the Nambe Recycling Center. Along with JCNNM, E Division was instrumental in the initiation and continued growth of this pueblo-owned business. Nambe Recycling depends heavily on interactions with LANL to secure a variety of sanitary waste for recycling.

E Division and the Laboratory as a whole have a commitment to purchase 100% of EPA-designated procurement items with recycled content unless they are not available competitively at a reasonable price or do not meet performance standards. This commitment aligns with Executive Orders, DOE guidance, and Appendix F performance measures. E Division tracks its affirmative procurement performance quarterly.

2 Planning for Continuous Environmental Improvement

2.1 Planning for Environmental Improvement

LANL has developed and uses as a guiding blueprint the Laboratory Strategic Plan, 1999-2004 (available at http://www.lanl.gov/orgs/pa/News/StrategicPlan99.html). The current LANL strategic plan sets out major programmatic objectives and strategies. It also identifies environmental objectives related to most LANL major goals. In addition, a major objective of demonstrating operational excellence in all activities specifically calls out the following strategies:

- achieve measurable improvements in safety and environmental stewardship through full implementation of ISM (which includes P2) throughout LANL; and
- manage wastes and hazardous legacy materials effectively and accept the challenge of minimizing the generation of hazardous wastes in the future, with a long-term direction toward zero emissions.

Each year LANL also produces an institutional plan, a five-year perspective on LANL operations. The Institutional Plan FY 2001-FY 2006 identifies strategic requirements for LANL organizational units, including E Division; summarizes strategic, tactical, and programmatic plans; and helps ensure the integration of LANL activities with DOE priorities.

Finally, a cross-functional team of Laboratory employees, experts in subject matters related to environmental performance, meet annually to identify and set priorities for the institutional environmental performance. This process, based loosely on ISO 14001 principles, includes aspect identification and the creation of draft targets and objectives for improvement efforts. Three members from E Division have been key players on this team. Information developed by this team is then transmitted to the Laboratory's Safety Function Manager for the Environment, who prepares an annual summary of environmental concerns that is transmitted to senior Laboratory management for action. The goals established by this process are then assigned to LANL organizations, as appropriate, for implementation, reporting, and tracking (Category 6.2 identifies the overall institutional process for environmental improvement.)

Based on LANL strategic directions, identified high-priority environmental improvement goals, and DOE requirements, E Division then develops its own strategic plan. The most recent version of the E Division strategic plan is entitled *Environmental Science and Waste Technology Division Supporting Plan (2000-2003)*. This document was not updated this year because of the impending reorganization. The major thrusts areas identified are Repository Science, Nuclear Waste and Materials Management, and Natural Resources Protection and Restoration. To develop this plan, teams were formed to address each of these thrusts. E-mails were sent to all employees encouraging their participation in the meetings or on a team. Each organization identified how it will contribute to achieving this strategic vision within E Division while delivering the results expected by DOE.

Figure 2-1 gives an overview of the E Division strategic planning process, which includes the following input:

- institutional strategic goals and objectives;
- institutional performance expectations as provided through performance appraisal of E Division senior managers (see Item 5.1)
- past performance, as documented through such activities as management walkarounds (see Item 1.1), as well as results from process improvement efforts (see Category 6.2);
- other operational results, including issues raised by nested safety committees (see Category 7);
- general and specific measures from Appendix F that influence E Division focus (see Category 3.1);
- the impact of proposed regulatory changes, with analysis based on input from LANL’s Governmental Relations Office, an organization charged with monitoring legislative and executive activities at both the state and national level;
- formal employee feedback gathered through LANL's annual Employee Checkpoint Survey (see Category 3.1) and the LANL Upward Appraisal Program (see Category 5.2);
- informal employee feedback such as those gathered through comments to the division’s electronic suggestion box and suggestions from the division Green Team;
- New Mexico Environment Department input, including regulatory findings, compliance orders, and feedback from the Green Zia Program; and
- reviews, comments, and suggestions from the CAB.

Through senior leaders' negotiations and assessments with DOE and UC stakeholders, E Division managers also get a clear perspective of how stakeholders view E Division performance against LLNL and LBNL in the "competitive environment." Only a limited amount of this competitive information is useful because LANL performs much work that is not performed at the other DOE laboratories.

Participation in the New Mexico Green Zia Environmental Excellence Program, with accompanying development of appropriate measures and performance indicators, is another key element allowing the division to incorporate environmental focus into long-range plans. For example, the Green Zia feedback report was used to develop a four-year action plan for integrating environmental excellence throughout the division (see Category 2.2).

2.2 Action Planning

After identifying goals, E Division develops P2E2 actions, targets, and measurements of success, as shown in Figure 2-2. Because managers and employees recognize that inefficiency leads to waste, there is an ongoing effort to improve operations. Item 6.2 describes the method by which key division processes are analyzed and improved. These improvement efforts include action plans, which are regularly reported to management and tracked for successful completion.

The management team (see Figure 0-2) is responsible for assessing action plans with a view to operational continuous improvement (including ES&H) and customer satisfaction. The team's recommendations are incorporated into the planning process at the points corresponding to the top three boxes identified in Figure 2-2.

Action planning is conducted for both programmatic scope as well as the conduct of operations. The contract developed between DOE and UC supports environmental excellence by specifically identifying the scope of work and associated costs for each year. Commonly referred to as a programmatic baseline, this plan provides detailed descriptions of *what* activities will be conducted and the resources required. Established through an exhaustive planning process that identifies all the environmental work yet to be done, the baseline assures DOE resources are appropriately aligned for the current year to accomplish work with highest priority. E Division's Project, Planning, and Controls Office creates a highly

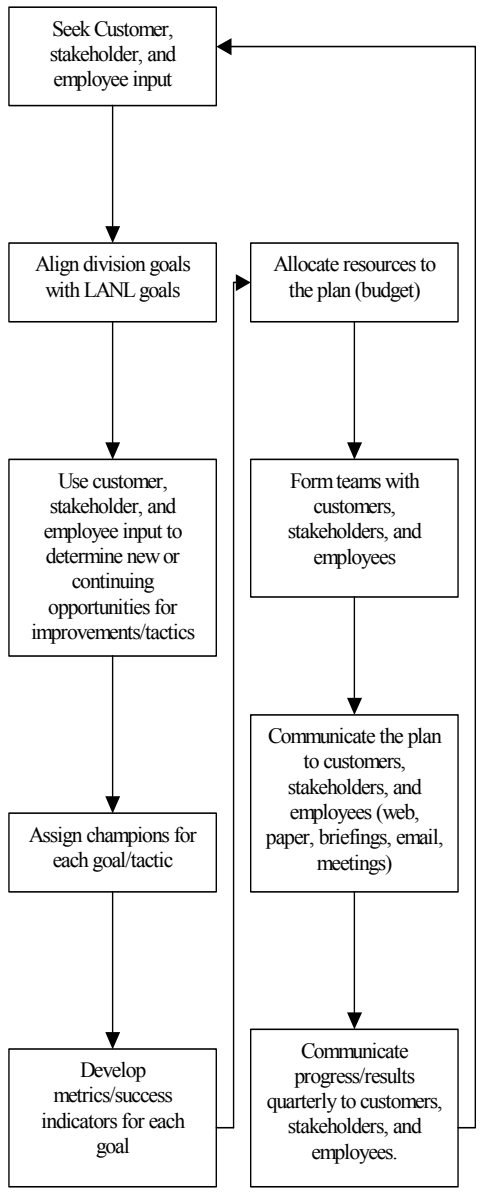

Figure 2-1. E Division's strategic planning process.

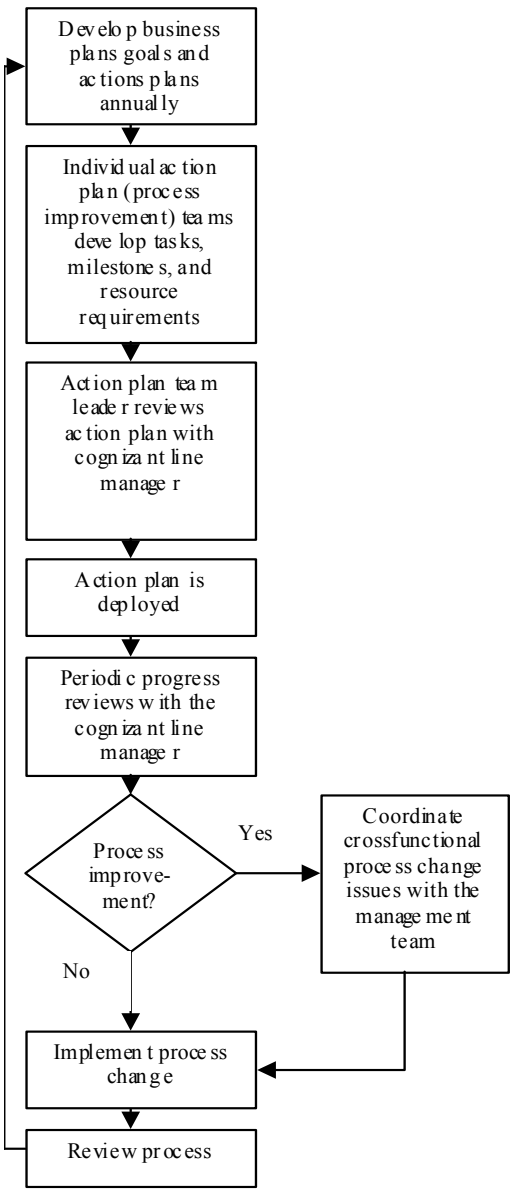

Figure 2-2. E Division's process for deploying and tracking action plans.

detailed project or action plan for each environmental or waste management activity included in the annual baseline. The plan includes resource and cost details that allow managers to project activities down to the individual worker level. How the Division involves stakeholders, vendors, customers, and other interested parties in their strategic plans is addressed in Category 3.

Action plans are typically designed to include activities over several years. E Division senior leaders review plan projections against actual performance on a regular basis (see Item 1.1) and use the analysis to improve performance projections. Through a formal change control process, as cost or process improvements in the activity are made, resources can be reprogrammed to take advantage of savings. Both time and financial resources are considered in this reprogramming effort. At the other end of the time scale, short-term action plans are typically developed by work teams at plan-of-the-week meetings. These plans may produce less formal documentation but still provide guidelines for work targets and the actions to reach those goals using the ISM five-step process.

E Division's annual self-assessment and implementation strategy for ISM focuses on how to involve all employees in making environmental improvement a routine part of all operations. E Division's ISM implementation plan documents employees' roles and responsibilities in integrating environmental excellence into their daily routine. E Division strives to incorporate a strong environmental and safety ethic into its culture. To that end, the division developed a presentation so group leaders can brief employees on the most important aspects of the ISM plan. Furthermore, E Division developed an ISM web page that describes core aspects of ISM, environmental excellence, and continuous improvement. This web page is available to all E Division employees, and the information found there also forms the basis of the division's orientation for new employees.

E Division involvement in the Green Zia Environmental Excellence Program has also led to an increased awareness of environmental concerns across the organization. Submission of this award application is part of a four-year-long division effort to more effectively and systematically focus on environmental performance. An E Division team took the 1999 Green Zia application feedback and developed an action plan (the Green Zia Action Plan; see Figure 2-3) that addresses the

Objective	Action	Date	Status
Make environmental excellence part of the work ethic and values in the division.	Establish consensus in management for environmental ethic. Develop environmental ethic with staff and rollout throughout the Division	2000-2001	100% Complete
Establish system for continuous improvement	Review 2000 Green Zia application and feedback for lessons learned and 2001 submission. Benchmark against other organizations (WIPP) Establish performance goals in specific process improvement areas (energy conservation, procurement, etc). Meet with and establish goals related to suppliers, contractors, and vendors. Improve E Divisions environmental component of ISM. Track E Division results using Green Zia.	2001-2002	90% Complete
Mentor other divisions and establish partnership with another division pursuing Green Zia excellence.	Establish partnership with another Green Zia Division Use E Division's action plan as a template for other divisions. Other divisions implement E Division's top 20 waste reduction options. Expand Green Zia involvement in the Laboratory. Market environmental successes to DOE, the Lab, community, regulators, and UC.	2001-2004	70% Complete

Figure 2-3. E Division's Green Zia Action Plan.

significant opportunities for improvement. This is a long-term plan addressing both short-term and long-term goals. This plan helped initiate the Green Team effort, which currently has twenty-eight voluntary members from across the Division. This team also identifies areas for improvement and suggests action plans to implement solutions.

Like the Green Team, nested safety committees at all levels also have responsibility for identifying areas of concern. These teams analyze issues and implement solutions that are within their span of control or else elevate the problem to a higher level of management for solution.

Examples of effectively implemented action plans, implemented across the Laboratory, include Mail Stop A1000 and Stop Mail J568.

- E Division employees worked cooperatively with LANL's BUS Division personnel to create LANL's highly successful environmental initiative, Mail Stop A1000. This is an effort to recycle unwanted junk mail and other printed material. Division employees re-address unwanted mail to MS A1000, and LANL mail delivery personnel collect and sort the material as part of their normal mailroom activities. In 2000 the program recycled over 245 metric tons of material. This program has received wide publicity both inside and outside LANL and in 2000 year received a White House Closing the Circle Award. The Closing the Circle Program, now in its sixth year, recognizes federal employees and their facilities for efforts that result in significant positive impacts on the environment in waste prevention, recycling, affirmative procurement (purchasing recycled products), environmental preferability, model facility demonstrations, and sowing the seeds for change. (See results in Item 7.1)
- E-ESO personnel also coordinate another initiative, Stop Mail J568. LANL employees can send to this mail stop any mail they no longer wish to receive. E-ESO personnel then take the steps necessary to have the recipient's name removed from the mailing list of the organization that originated the mail. This prevents the need to recycle unwanted material by ensuring it is never generated. (See results in Item 7.1)

E Division also must ensure safe and compliant operation of facilities it manages on both a short-term and a long-term basis. Operational plans include the following:

- standard operating procedures;
- hazard control plans;
- facility management plans;
- configuration management plans;
- facility safety plans;
- quality assurance plans;
- emergency action plans;
- training program description and job analysis; and
- maintenance implementation plans.

E Division’s nonreactor Category II nuclear facilities require even more stringent plans such as a Safety Analysis Report (SAR). The SAR describes *how* all the activities are being done and postulates safety scenarios that could impact the facility and how those scenarios would be managed. Several other plans are also produced from the SAR. These include

- fall protection plan;
- fire protection plan;
- joint environment and safety plan;
- industrial and radiation monitoring plan;
- project management plan;
- procurement procedure;
- storm water P2 plans; and
- spill prevention plans.

All of the above plans include a formal change control process to manage communications, distribution, and training requirements.

The Laboratory also has an institutional P2E2 plan. This plan is developed by E Division in partnership with DOE and defines the strategy for preventing environmental impacts from current Laboratory operations. The plan describes

Laboratory management systems, the main waste streams generated during operations, and strategies for reducing waste with goals and objectives to monitor that strategies are working. The partnership revisits this plan yearly.

E Division also depends on internal and external audits for developing action plans. For example, during an NMED inspection, inspectors identified unlabeled waste materials. The Division conducted root cause analysis and corrected the issue of mislabeling material by consolidating chemical storage sites so it is easier to track and assure properly labeled chemicals.

2.3 Integration and Implementation

ISM provides an integrating factor for action plans. As Figure 0-8 shows, ISM is the methodology E Division uses to plan, control, perform, and evaluate operational work. Senior leaders formally review the plans at least quarterly to ensure the division is making appropriate progress and report this progress through group meetings and all-hands meetings. Weekly meetings and monthly summaries of information from the nested safety committees also provide systematic evaluation and review. Quarterly Appendix F reviews document E Division performance, as does the final year-end assessment. E Division's contribution to overall LANL Appendix F environmental goals is also reviewed and documented quarterly and in a written annual assessment. And senior leaders also assess overall environmental performance during the quarterly ISM assessments for the division in planning future activities.

The planning process allows managers to closely tie both strategic and tactical activities to budget submissions and to plan for most effective movement of staff to meet requirements. Priorities established in the business plan become the drivers in resource allocation in the budget process. The quarterly reviews allow managers to track resource allocations and to make any necessary adjustments to either funding or human resource allocations. For example, division leaders recently identified the need to have an ES&H expert resident in the division office. An individual has now been hired to provide that expertise and leadership for the entire division.

Finally, development of clear strategic and action plans allows for full integration of performance requirements for each individual division employee. As Category 5.1 explains, objectives for each employee are designed to ensure that the organizational objectives are met and that the employee has a clear view of how his or her work requirements contribute to the success of the entire organization.

In 2001, E Division completed an analysis of all components of environmental management at Los Alamos National Laboratory, comparing existing systems with requirements established by ISO 14001, the international standard for environmental performance. This gap analysis, published as LA-UR-00-6054, showed that most necessary elements of an effective environmental management system are in place. For those areas needing improvement, E Division convened regular meetings of environmental managers, both within E Division and from other LANL organizations, to begin addressing necessary changes.

E Division involves and integrates input from its major customer, DOE, through quarterly meetings and yearly Appendix F Performance Measures negotiations. Regulatory stakeholders are involved through the monthly sessions between DOE, NMED, and E Division leaders. The public is involved through the monthly meetings of the CAB and other special meetings.

Every action plan has targets and measures to ensure that actions are implemented. These plans are reviewed anywhere from quarterly to yearly and revised accordingly. For example, the Green Zia plan is reviewed monthly to ensure progress towards implementing environmental excellence throughout the division.

3 Customer, Supplier, and Others Involvement

3.1 Customer Involvement

Just as frequent and open communication marks E Division’s internal management practices, so does it characterize interactions with customers and stakeholders. The division is highly conscious of the need to fully involve all parties to improve the efficiency of work and to demonstrate a sustainability ethic in daily operations.

The performance measures found in Appendix F of UC’s operating contract provide clear expectations, increase accountability, and improve customer relations by addressing performance issues that concern DOE. Hence, Appendix F serves as a major vehicle for both determining customer requirements and performance levels for most of E Division's customer segments.

The Operations and Administration portion of Appendix F contains approximately one hundred specific performance measures and associated goals in nine major categories for evaluation (see Figure 3-1). The Environmental Restoration and Waste Management category contains sixteen specific measures that are managed by E Division, and the Environment, Safety and Health category contains one more measure that E Division owns. Table 3-1 shows these Appendix F measures for which E Division has primary responsibility.

E Division performance is also included in several other Appendix F measures directly related to environmental excellence that fall within the functional area of ES&H. In addition to providing some specific data related to E Division performance, these environmental measures also show the division's contribution to overall LANL environmental achievement, including full implementation of ISM. Similarly, Appendix F measures in other categories track institutional performance, to which E Division contributes, in areas such as monitoring supplier environmental performance and using purchasing to support the local economy.

The negotiation steps for Appendix F measures, the process to set priorities, the improvement steps, and the resulting evaluations (see Fig. 3-2) all help focus E Division resources on key business processes and improve operational quality. This annual negotiation process also provides clear evidence of continuous evaluation and improvement. Appendix F requires a quarterly self-assessment and evaluation by both UC and DOE, but E Division senior leaders also meet

monthly with UC and DOE representatives to discuss current progress against goals and to identify any issues. Senior leaders also interact more often with DOE and UC customers on an as-needed basis. The regular and frequent interaction helps prevent surprises, mitigate problems, and create a cooperative rather than an adversarial atmosphere.

E Division uses a variety of techniques to communicate with external customers and solicit feedback regarding our performance. Figure 3-3 outlines these techniques. Written reports and detailed formal reviews provide the opportunity to document issues. Face-to-face meetings—such as the quarterly sessions that include representatives from E Division, DOE Albuquerque, DOE Los Alamos Area Office (LAAO), NMED, and even Sandia National Laboratories (another DOE facility in Albuquerque)—allow for open discussion of issues of concern to the entire group. Of course, E Division managers also interact informally with customers on an as-needed basis whenever additional communication is required.

E Division also uses its world wide web site to communicate with customers, stakeholders, and suppliers, keeping all parties well informed of current and projected progress. The site contains extensive information, including program details and answers to frequently asked questions while minimizing paper consumption. The web site also allows users to send

Appendix F

Laboratory Management

Science and Technology

Operations and Administration

- Environmental Restoration & Waste Management
- Environment, Safety and Health
- Project/Facilities/Construction Management
- Safeguards and Security
- Financial Management
- Human Resources
- Information Management
- Procurement
- Property

Figure 3-1. Appendix F evaluation categories.

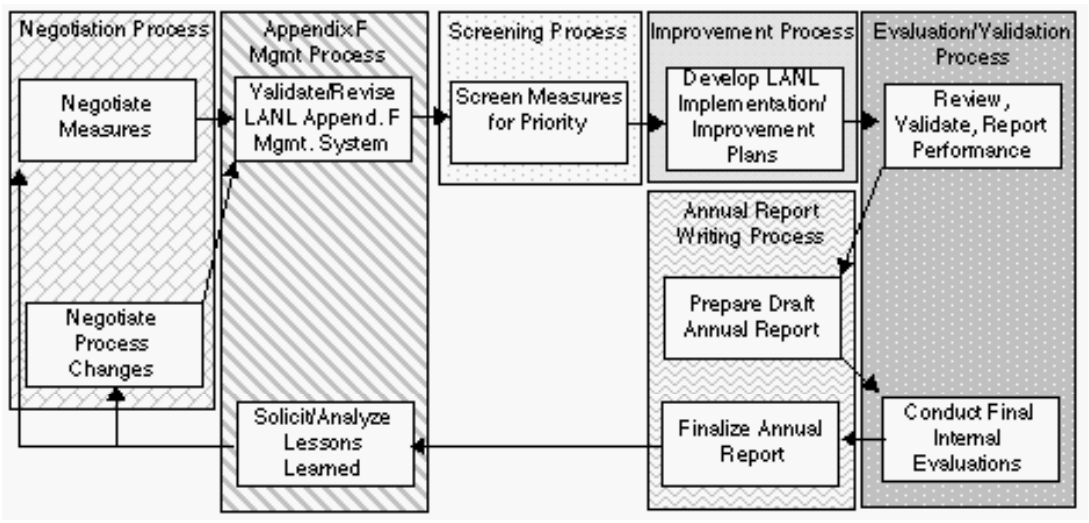

Figure 3-2. LANL Appendix F process (18-month continuous cycle).

requests or comments to the immediate attention of E Division staff. The division's use of electronic communications also encourages customers to conserve resources. Item 3.3 includes discussion of stakeholder involvement, including that of employees and the public.

Although E Division is a non-profit organization with a relatively fixed market, the organization does extensively market and share its capabilities both nationally and internationally. In order to support environment excellence efforts at other DOE sites, E Division provides advice and environmental consulting services for DOE operations at Rocky Flats outside of Denver, Colorado, the Hanford Site in Washington state, and the Yucca Mountain Project in Nevada. In addition, E Division's Science and Technology (E-ST) Program helps DOE develop state-of-the-art environmental remediation and decontamination techniques for use around the nation. The Program coordinates science and applied research to develop technologies that make environmental clean-up faster, better, safer, and more cost effective. The E Division Office conducts environmental work for other national and even international customers to help create an eco-efficient society for the 21st century. Under this leadership, LANL has become EPA's lead laboratory for green chemistry programs and processes. This program identifies environmentally friendly substitutes for toxic or hazardous materials. One initiative includes a recently concluded series of five educational conferences involving industry, government agencies, and research community. E-ESO organizes and conducts an annual Pollution Prevention Conference for the entire DOE complex and also promotes P2E2 initiatives that have application in many DOE facilities.

To help market environmental technology, E-ST has formed partnerships with several universities and other national laboratories. These partnerships allow each organization to apply their unique expertise and build a complementary, integrated solution to tough environmental problems. An example of such a partnership addresses disposition of nuclear materials. The Laboratory is DOE lead for the Nuclear Materials Focus Area (NMFA). NMFA is a partnership with DOE's Idaho Operations Office and Albuquerque Operations Office; formed by merger of the Plutonium Focus Area in the Office of Science and Technology, and the Nuclear Materials Stewardship Technology Development Program in the Office of Nuclear Materials and Facility Disposition. E Division recognized the need for a concerted, dedicated development program to address various issues and problems concerning disposition of nuclear materials within the purview of the Division. This program also addresses Nuclear Materials management safety and concerns raised by the Defense Nuclear Facilities Safety Board. Problems and issues associated with nuclear materials have significant implications towards meeting the goals and milestones for accelerated cleanup.

To encourage pollution prevention and resource conservation among its internal LANL customers, E Division administers the Generator Set-Aside Fee (GSAF) Program and LANL's annual Pollution Prevention Awards. The GSAF Program collects a tax on all waste generated by Laboratory organizations. The money is then provided back to qualifying organizations as grants to implement new pollution prevention strategies or to purchase equipment that will

Table 3-1. Appendix F Measures owned by E Division.

Functional Area	Measure	Focus
Environ. Restoration	1.1.a	Program progress
	1.2.a	Cost variance
	1.2.b	Program mgmt cost control
Waste Mgmt.	2.1.a	Cost effectiveness
	2.2.a	Reporting, treating, disposing of legacy MLLW
	2.3.a	TRU waste certification
	2.3.b	TRU waste processing
	2.4.a	TWISP Retrieval Project
	2.5.a	Off-Site Source Recovery Project
	3.1.a	Tracking & cost savings
	3.2.a	Newly generated MLLW treatment & disposal
	3.2.b	TRU waste certification
		TRU Waste Storage
	3.2.c	Radioactive liquid waste
	3.2.d	Low-Level Waste
	3.2.e	Chemical & hazardous waste
	3.2.f	
Environment, Safety and Health	1.2.c	Waste minimization, affirmative procurement, natural resources conservation

permit more effective operations. The annual Pollution Prevention Awards provide a cash incentive to individuals or teams who demonstrate innovative approaches to minimizing waste or reducing resource consumption.

3.2 Supplier Involvement

In many cases, E Division employees work side by side with contract employees, especially in environmental restoration activities. Division employees and contractors also work together in operational activities such as those at the

Laboratory's transuranic (TRU) waste management facilities. Such close working relationships provide daily opportunities to interact with vendors and discuss environmental concerns and performance expectations. Plan-of-the-day

Technique	Customer	Frequency	Purpose
Progress Tracking System (written report)	DOE Albuquerque & DOE Headquarters	Monthly	Overall program and financial update
Progress Reports	DOE LAAO DOE Albuquerque	Monthly	Operational progress against baseline expectations for E-ER and E-WM
Formal Reviews	DOE LAAO DOE Albuquerque	Quarterly	Performance evaluation against Appendix F measures
Status Reports	DOE LAAO DOE Albuquerque DOE Headquarters	Weekly	Updates on P2 activities from E-ESO
Senior Management Meetings	DOE LAAO DOE Albuquerque NMED	Quarterly	Face-to-face discussion of operations and performance

Figure 3-3. E Division's interaction techniques for external customers.

meetings and tailgate meetings (links in the chain of nested safety committees) provide a daily forum for soliciting input on ways to minimize the environmental impact of scheduled work. Communication and feedback happen in real time, and even informal exchanges provide a chance to enhance environmental consciousness.

At the higher and more formal level, LANL financial policies require that most product/service purchases be coordinated through LANL's BUS Division. Specific supplier requirements are defined for each supplier in a customized contract which is negotiated, implemented, managed, and evaluated by BUS procurement personnel. E Division develops comments for this process to help mold expectations for environmental excellence. When data suggests that a change to the supplier's process be made, BUS Division provides a team to work with the supplier to improve its process using the plan-do-check-act process. BUS Division is also responsible for evaluating the overall performance of suppliers, as specified in Appendix F. Figure 3-4 shows the LANL contracting process, which E Division follows.

Within its sphere of interaction with equipment suppliers, E Division does employ several environmental considerations. For example, the division now ensures that all new computers are equipped with Energy Star, an energy saver function that turns off the monitor's screen when the computer is not in use. The division also is making a determined effort to ensure that purchased office products, including paper, contain recycled content. To minimize the use of paper, printers and copiers are set to automatically print double-sided, and new equipment will be required to have that capability. The use of electronic messaging and a comprehensive web site also promote the minimization of paper usage. The division also promotes saving of wastes and expense associated with unnecessary travel by supporting teleconferencing and distance learning.

E Division also works with contractors and vendors to improve environmental performance. For example, we are part of the New Mexico Environmental Alliance—a partnership of state, local, and federal agencies; academia; private industry; and environmental advocacy groups—to implement the philosophy of the Green Zia Environmental Excellence Program. The major subcontractor at the Laboratory is JCNNM. The Division works with JCNNM to employ several waste minimization programs. For example, the Division implemented a cardboard recycling program through JCNNM. This has contributed to significant reductions in cardboard waste. E Division has been instrumental in encouraging JCNNM to us the Green Zia Tools to analyze a variety of environmental problems, such as why hydraulic spills occur and how to prevent future spills. In addition, this year E-ESO worked with another major sub-contractor, ARAMARK

Corporation, the main food service provider for the Laboratory, to help that organization increase its environmental consciousness and to reduce sanitary waste.

Executive Order 13101, signed by President Clinton on September 14, 1998, and the Resource Conservation and Recovery Act (RCRA) require federal agencies and their subcontractors to purchase products made with recovered materials. The purpose of the Executive Order and the Laboratory's affirmative procurement program is to develop a large market for green products by encouraging local businesses to develop and supply these products. E-ESO took the lead to ensure affirmative procurement is implemented throughout the Laboratory. The items include, but are not limited to, paper, toner cartridges, carpet, binders, etc. Goals have been set by the DOE, which will require the Laboratory to buy 95% of affirmative items on an annual basis. To meet DOE and UC performance measure goals, E-ESO ensured that the Laboratory's on-line catalog lists only paper and toner cartridges made with recycled content. In addition, E-ESO is helping BUS Division encourage vendors to include more products made from recycled products and to limit the amount of packaging used with products. Furthermore, with E-ESO support, BUS Division is more fully implementing environmental standards in vendor contracts. E-ESO personnel review LANL purchases on a monthly basis to identify opportunities to improve affirmative procurement. Results of this monthly analysis are available on the web for the institution as a whole and for individual divisions. In 1997, the Laboratory had an affirmative procurement rate of less than20%. Due to E-ESO, BUS, and Computing, Information and Communications Division efforts, by 2000 this percentage had increased to 93%.

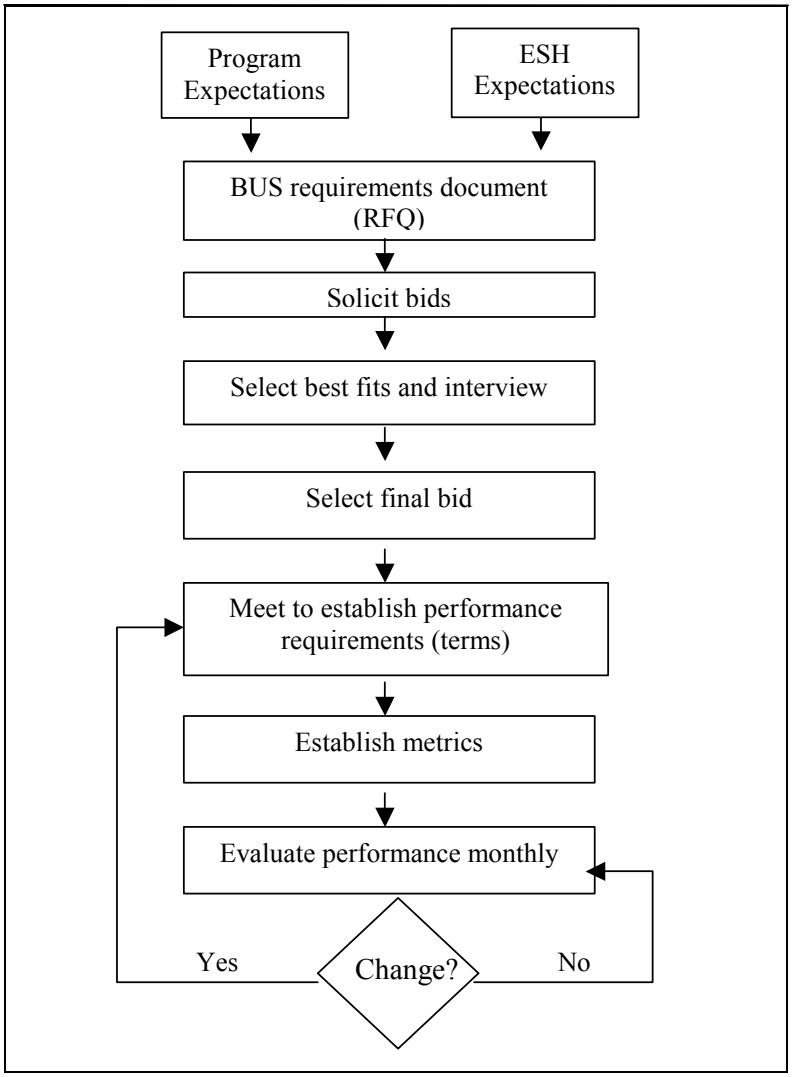

Figure 3-4. The supplier management process.

3.3 Others' Involvement

To gather feedback from E Division employees, division management relies on two LANL programs, the annual Employee Checkpoint Survey and the Upward Appraisal Program. The Employee Checkpoint Survey monitors employee perspectives and contains standard types of questions in general categories including safety, productivity, and customer focus. The structure of the survey allows our senior leaders to perform comparisons with other operational divisions within LANL and also with other companies. For the past five years E Division has also participated in LANL's annual Upward Appraisal Program (see Item 5.2), which allows employees to provide direct feedback to managers regarding the supervisors' behavior and ability in areas such as ES&H, communication, and accountability. Division managers review the information from these instruments and use it to help establish goals and corrective actions. (Note: The Employee Survey and the Upward Appraisal were not conducted in 2000 because of the Cerro Grande Fire. They will be used in 2001.)

E Division also holds quarterly all-hands meetings. At these sessions management presents information of interest to all employees and also provides a forum for soliciting employee comments and feedback. Management walkarounds provide an opportunity for managers and employees to interact informally and to jointly review safety and environmental issues in the workplace. In every issue, the electronic *E Division Weekly News* solicits suggestions and feedback from employees. The publication also includes regular articles on employee safety, pollution prevention activities and opportunities, and information on resource conservation. Every six months a focus group of employees from across the division provides input to help identify the type of information most important for the publication to include. The division also provides environmental stories to the Laboratory's electronic publication, *The Daily Newsbulletin*, to help spread environmental awareness across the Laboratory. Last year the Division completed a cultural planning activity, designed to identify the core values and capabilities the organization should have in the future. The facilitated team was composed of representatives from all segments of the Division.

To include public perception, E Division relies on discussions in the CAB, as discussed previously. In addition, LANL has conducted an annual survey of public opinion in various formats since 1998. The resulting reports profile New Mexico community leaders' awareness of and satisfaction with LANL operations (note results in Item 7.2). The survey also helps to identify current and emerging issues of importance to leaders in the region. In addition to asking about general perceptions of LANL, the survey allows respondents to voice their opinion of LANL's environmental responsibility. Results from the survey are recorded, analyzed, reviewed, and used in planning activities. E Division managers are pleased with the results of these surveys that demonstrate public satisfaction with environmental efforts despite both E Division and LANL funding constraints.

Appendix F reports, which become public records, are another way that LANL communicates continuous environmental improvement goals to interested parties. The Appendix F process is subject to significant audits that provide independent evaluation of success. Reports are prepared and distributed internally from all audits. Regulatory audit results and other continuous environmental improvement project data are published in LANL's annual *Environmental Surveillance Report* and distributed to the public and other interested parties as well as to the local press. Other formal reporting avenues include notification processes and interactions related to NMED compliance orders. E Division employees also serve on public committees such as Vision Los Alamos. Such participation provides opportunities for outreach as well as a chance to learn what environmental issues are of highest concern to members of the local community. For example, community members of this committee expressed concern over the slow rate at which TRU waste was being removed from LANL property, and this led to a revised commitment to accelerate that removal.

LANL has a graded, systematic approach for reporting data and other activities. Routine monitoring data is reported in the annual *Environmental Surveillance Report*. In the event of an accidental spill, any levels exceeding regulatory reporting limits are reported through ESH Division to DOE, EPA and NMED. Each LANL division, including E Division, develops an emergency response plan, which describes to whom and in what time frame information is reported.

If an off-normal event occurs at E Division, we participate directly in the DOE Occurrence Reporting and Processing System investigation. A root cause is identified for each occurrence, responsibilities assigned, and remedial measures defined. These occurrence reports are available to the public and to regulatory agencies at http://drambuie.lanl.gov/~esh7/Finals/ and in LANL's public reading rooms.

For the Laboratory as an institution, ESH Division coordinates most direct contacts with oversight agencies related to Laboratory operating permits. E Division supports ESH Division in preparing permit applications, meeting with regulatory agencies to provide technical input, and assisting ESH Division in conducting regulatory agency audits. E

Division does have a close relationship with regulatory agencies to manage compliance, and some E Division groups meet with regulatory agencies on an as-needed basis. ESH Division and NMED hold joint public meetings to provide new information. ESH Division provides funding to NMED for studies like the dose reconstruction project. DOE provides funding to NMED to staff an office in Los Alamos with oversight personnel.

ESH and E Divisions also participate in the development of requirements, as regulatory agencies allow. When invited, E and ESH staff members participate in trust-and-partnering activities with regulators to develop guidelines. For example, E Division collaborates in ecological risk analysis strategies as appropriate with regulatory agencies. When not invited to participate in developing proposed regulations, LANL and E Division participate in a process to comment on regulations that affect them and participate in public hearings to represent the Laboratory.

One of E Division's primary methods of communicating and involving other interested parties is through active participation in the New Mexico Green Zia Environmental Excellence Program. Participation in the program gives E Division an annual third-party, independent evaluation of successes and opportunities for improvement in environmental performance. E Division employees also collaborated in developing the P2 Advisory Council and statewide strategies to protect the environment.

4 Information and Analysis

4.1 Information Collection Management

The Appendix F Process (see Item 3.1) is a key performance indicator of E Division's contractual requirements and also a measure of customer satisfaction. Appendix F data also allows the division to compare its performance with other divisions as well as with similar government-owned, contractor-operated institutions. Managers monitor progress related to performance goals and use that information to develop and/or modify operational plans and to identify areas for improvement. Results presented in Category 7 show that overall scores in most of the Appendix F functional areas have improved over the past years or remain at a sustained high level, indicating DOE approval of performance in this area.

As mentioned in Item 3.1, Appendix F contains seventeen measures for which E Division bears primary responsibility. Many other Appendix F measures evaluate total LANL performance in environmental arenas. Because these measures include all aspects of LANL operations, E Division's performance contributes to the ultimate evaluation score. E Division has identified the following LANL-wide environmental performance measures as being directly applicable to the division and closely monitors performance levels:

- ISM System implementation and enhancement;
- environmental performance;
- radiation protection of workers;
- management walkarounds (see Item 1.1);
- injury/illness prevention;
- E2 and overall utilities conservation (this item includes three separate and distinct measures);
- measuring supplier performance; and
- meeting socioeconomic commitments.

ISM's five-step methodology also provides a means by which E Division can understand and evaluate the environmental and energy-associated aspects of our activities. LANL senior leaders have carefully monitored progress toward full implementation of ISM (see Item 1.1). The ISM Project Office has established a detailed implementation schedule, available on an employee-accessible web site, and monitors all portions of LANL, including E Division, to ensure that milestones are achieved and that performance goals are met. A DOE audit of ISM in April of this year indicated that implementation is on track and that LANL efforts in this area are fully satisfactory.

Under the leadership of E Division, the Laboratory is evaluating the use of International Standards Organization (ISO) 14001 as a guide to establish requirements for a robust environmental management system. ISM is being improved to include an even stronger focus on environmental performance. This year each LANL division, including E Division, is preparing quarterly self-assessments against ISM requirements, including requirements for environmental protection.

This assessment will help shape institutional priorities and will also help E Division identify and begin to improve its most significant environmental weaknesses. This self-assessment will be an ongoing process.

Division managers also use the management walkaround program to gather information on the safety and overall performance of the division. The program allows for managers to make direct observations and also to talk informally with employees about issues of concern. Any problems noted during these walkarounds are entered into a database and are tracked to resolution. Similarly, the two-directional discussions in nested safety committees allow for an informal evaluation of division performance, especially related to safety and environmental performance.

Another aspect of ISM is the institutional Safety Concern Program, a no-fault partnership between workers and managers to identify and resolve safety concerns. The program is designed so that managers receive electronic notification of the safety concern and the submitter receives periodic updates as the concern is tracked to resolution and closure. E Division managers track the issues raised by division employees to assure that issues are addressed and to identify the types of employee concerns.

In addition to monitoring its contribution to overall LANL institutional performance as measured by Appendix F, E Division also tracks information gathered through various institutional databases to track other ES&H performance. These systems also provide environmental monitoring data for regulatory reports, modeling, and analyses. For example, the E-ER project uses Facility for Information Management, Analysis and Display (FIMAD, a geographical information system) to target areas that need environmental restoration. They also use FIMAD to report their progress to DOE and the community.

Several years ago LANL spent nearly $30,000,000 preparing a Site-Wide Environmental Impact Statement, required by DOE, that looked at impacts of operations on the environment and identified measures to mitigate impacts, including reductions in water and electricity consumption and waste generation. E Division owns several of the actions that became part of the official Mitigation Action Plan developed to minimize LANL's impact on the local environment. On a regular basis division managers track progress toward completion of those actions.

E Division management also evaluates division performance through analysis of information collected in LANL institutional programs. For example, senior leaders review results from LANL's public opinion survey and also analyze division-specific information from the annual Employee Checkpoint Survey and Upward Appraisal. Internal data—such as that from operational performance and improvements—also plays a role in management's review of E Division.

E Division leaders also gather data on other aspects of the division's environmental performance.

- In addition to its contribution to overall LANL performance in injury/illness prevention, E Division specifically measures and tracks its own performance in this area. For example, evaluating information from management walkarounds helps assure that managers are aware of and can correct potentially dangerous or unhealthy situations. Safety and environmental performance results for the division are reported weekly in the ISM Working Group meeting.
- This year E Division will receive its third set of impartial evaluation and feedback on its environmental performance through participation in the New Mexico Green Zia Environmental Excellence Program. Division senior leaders have been tracking this feedback and use identified opportunities for improvement as initiation points for additional improvements.
- Process changes save not only physical resources but also result in time and cost savings. E Division monitors process performance and tracks these savings. For example, E Division's Environmental Technology Group (E-ET), identified process improvements in its waste certification and packaging operation that can save $1 million over the course of the multi-year project.

E Division uses the LANL ESH-ID process to assess possible environmental impacts of activities and possible methods to mitigate those impacts. This institutional process provides an opportunity for the division to gain feedback on its own proposed activities and to make suggestions that will enable other parts of the Laboratory to minimize their environmental impacts. Early in the development of a new or modified process, appropriate personnel prepare a description of the new or modified process and identify all potential environmental air or water releases, any solid wastes or wastewater that might be generated, any hazardous chemicals used, and other information needed to determine environmental impacts and safety concerns. Controls that will be used to mitigate environmental or safety impacts are also documented in the ID. ESH Division posts the identified project on the web, where it is accessed by ESH, E, and Facility and Waste Operations (FWO) Divisions, as well as by other Laboratory organizations who provide feedback.

Permits, notification, and other documentation needed are identified at this stage. E-ESO reviews the project for P2E2 opportunities and suggests methods to achieve P2 and energy savings. DOE reviews the project with regard to NEPA regulation requirements to determine whether the project is significant and requires an environmental assessment or environmental impact statement to assure that there are no significant adverse impacts and that the project is environmentally benign.

4.2 Analysis and Decision-Making

E Division managers—using input from Appendix F reviews, Green Zia assessments, road mapping, databases, community meetings, reports, and surveys—systematically analyze data to develop the information necessary for wise decision-making.

The strategic planning process described in Item 2.1 forms the basis for the annual roll-up of a comprehensive set of data. The division management team formally reviews the business plan annually. Quarterly, DOE provides feedback on overall LANL performance, and the division formally evaluates progress toward Appendix F goals. Many E Division programs and activities are formally reviewed monthly (see Item 3.1). E Division managers use a risk-based decision-making process to assign priorities for environmental improvement efforts. When information shows that an imminent risk exists, senior leaders take immediate action to remedy the situation. Other problems are addressed in priority order depending upon the degree of potential hazard. This method of establishing priorities is part of the ISM methodology.

On a more informal basis, operational data is presented and analyzed at management meetings that include all leaders within the division. E Division managers review all the data identified in Item 4.1 on at least an annual basis, with the majority of information being evaluated much more frequently. For example, the ISM Working Group—one link in the chain of nested safety committees—meets weekly, and environmental performance is a standing agenda item. The weekly ISM meeting includes representatives from all parts of the organization and is a forum to review environmental performance, including accidents and injuries, and to discuss progress toward safety and environmental goals. At any appropriate level—work team, group, division, or institution—the nested safety committee structure makes available the necessary information for making decisions about worker and environmental safety.

In some cases, E Division uses road mapping to determine long-range actions. E Division gathers cradle to grave information about waste streams from all over the Laboratory each year and then uses this data to develop a road map illustrating environmental stewardship throughout the Laboratory. The road map describes current operations, improvements that will eliminate the sources of environmental incidents, and the end-state that is the Laboratory's goal. The 2000 version of the roadmap is an amendment to the Laboratory's 1997 Site Pollution Plan, and it is certified, along with that Plan, to satisfy legal requirements. The institutional waste streams reviewed are transuranic, low-level, mixed low-level, hazardous, solid sanitary, and construction waste, and the document also addresses water and energy use. E Division tracks these waste streams at the group level, which is the smallest organizational unit at LANL. The road map can be used to make decisions because it lists projects that need funding and implementation to reduce these waste streams.

E Division also maintains extensive databases related to environmental information for the Laboratory as an institution. This data ranges from measurement of progress toward goals for routine waste minimization for various waste types to percentage of sanitary waste recycled. E Division uses this data to target significant waste generators. Once it identifies a target, the Division routinely manages, facilitates, and consults with the target organization (including itself) to minimize waste and prevent pollution. A part of Laboratory success in reducing waste is E Division's ability to effectively manage data and use data to help other organizations develop plans to meet Laboratory waste minimization goals. For example, data and customer feedback indicated that LANL could make many environmental improvements related to routine, nonhazardous operations. E Division, therefore, is pioneering the collection of non-operational P2 information to motivate employees. Relevant information will include the extent of use of carpooling for meetings, extent of use of mass transit options and the LANL taxi system, and extent of use of the sanitary-waste recycling system.

Another example of E Division's leadership in environmental analysis for the institution is the completion in early 2001 of a gap analysis comparing the Laboratory's environmental management capabilities with those required in ISO 14001. One area for improvement identified in the gap analysis was the need for a more formal understanding and evaluation of LANL's environmental aspects. E Division is currently leading an effort with other LANL environmental managers to specifically identify significant environmental aspects and to begin work to systematically minimize those impacts.

The Appendix F measures provide E Division with an opportunity to compare performance levels with other LANL divisions as well as both LLNL and LBNL, the two other research and development laboratories managed by UC for DOE. Not all Appendix F measures are applicable to all three laboratories, and some adjustments are made for individual institutions. While the comparison process is not always precise and does not constitute formal benchmarking, the side-by-side evaluation each year does provide interesting relative information and leads to identification of both best practices and areas for improvement.

The action planning process described in Item 2.2 forms the basis for a periodic assessments of progress on specific initiatives relating to P2E2 goals and partnering with employees, suppliers, vendors, and customers.

5 Employee Involvement

5.1 Employee Education and Skill Development

LANL's Performance Management System (see Figure 5-1) requires all groups in E Division to establish objectives which support the organizational echelons above them. Objectives for each employee, including managers, are then designed to ensure that the organizational objectives are met and that the employee has a clear view of how his or her work requirements contribute to the success of the entire organization. The system thus ensures that employees know what job results are expected, how they are expected to perform work, how their performance will be reviewed by others, the impact their contributions have on achieving the organization's objectives, and how this is tied to rewards or consequences. The Performance Management System ensures clear two-way communication during the goal-setting phase of the process, provides a focus for ongoing discussion about work objectives and processes, and creates a framework for evaluation of work performance. Specific goals include:

- aligning individual expected results with institutional goals;
- identifying and assessing individual performance results/accomplishments;
- evaluating performance of institutionally defined behaviors;
- describing how individuals helped to meet organizational objectives;
- linking performance to rewards or consequences;
- designing development plans to support improving performance in current jobs and/or increasing impact on the organization (through training, education, skill development, or other means);
- enhancing employee/manager ownership of individual and organizational performance; and
- improving two-way communication between supervisors and employees.

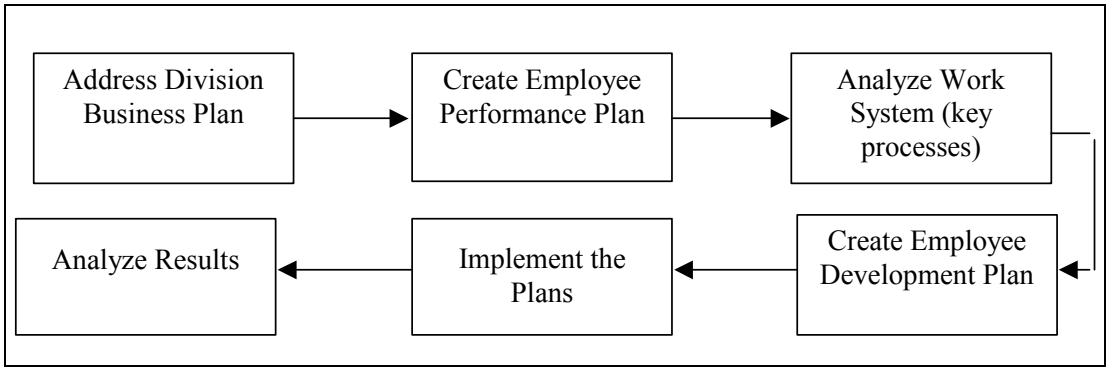

Figure 5-1. LANL's Performance Management System.

As part of performance management, division managers also work with each employee to cooperatively prepare individual development programs—both short-term and long-term—on an annual basis. As employees and their managers work together to identify how they will contribute to group and division business plans, they identify the need

for new skill and competencies and jointly develop a growth plan. It is then up to managers to supply the resources (time, money, and support) to enable and encourage the employee to accomplish his or her development plan. Throughout the year the manager and employee evaluate the development and learning objectives to address changing employee and company needs.

Once developmental goals have been established, employees may participate in appropriate training offered by LANL or other organizations. LANL's ESH Division offers over forty courses related to environmental issues, from general safety training and first aid to courses on such specific topics as packaging and transporting hazardous materials. In addition to environmental training required by their specific jobs, employees are encouraged to enroll in courses that will enhance their ability to help the division accomplish its goals.

E Division also encourages its employees to participate in LANL's institutional career development programs, which helps identify skills gaps and excesses and provides training to address them. Employees can choose to enhance their existing skills or to further develop other skills that LANL needs now or for future programs. For example, the Laboratory provides annual classes to enhance Technicians' career opportunities. The classes include resume writing, interview skills, networking, and key mechanisms to identify career choices and career satisfaction. Similar courses are available to all employees.

Communication, cooperation, knowledge, and skill-sharing among individuals and teams is accomplished through regular meetings, such as division all-hands meetings and group sessions, and participation on teams. All meetings have a significant ESH component. Informal knowledge- and skill-sharing occurs by design at special events hosted by LANL in general or specifically by E Division. For example, Earth Day and Safety Days activities provide a relaxing venue for employees to enhance their environmental awareness while also encouraging them to share and interact with each other. In addition to occasional job rotation opportunities, the division also encourages employees to lead grass-roots efforts within the organization, such as the Green Commitment Team. Such activities provide a distinct benefit to E Division by creating strong employee input to important issues. At the same time, participation in such efforts allows employees to gain more knowledge about the division and its goals and to increase management awareness of their abilities and talents.

E Division also provides extensive opportunities for students to develop their job skills, learn more about environmental issues, and gain work experience in a premier research and development institution. All students are paired with mentors who can guide their professional development. E Division offers employment through the following LANL programs:

- Postdoctoral Program— This program provides a stimulating environment to broaden the education, training, and scientific research experience, including the freedom to publish, to outstanding candidates who are selected to participate in the program.
- Graduate Research Program—This program provides graduate students with the opportunity to gain valuable research experience while they are pursuing their degree. As graduate research assistants, students can often arrange to conduct master's or doctoral thesis research at the Laboratory.
- Undergraduate Student Program—This program provides undergraduate students with relevant research experience while they are pursuing their degree. This educational program is designed to complement the students' education with work experience related to their chosen field of study.
- High School Cooperative Program—This program provides qualified high school seniors the opportunity to develop skills and gain work experience while receiving exposure to a variety of technical and administrative career fields. This popular program provides employability skills and assists local area high school students with the school-to-work transition.

Training programs are a key component to assuring actions by workers that reflect integrated plans. Training begins with a formal introduction to the Laboratory, followed by a more specific introduction to E Division. Quarterly, new employees attend sessions aimed at familiarizing them with division expectations, goals, and operating procedures. The orientation includes sections on environmental responsibility and ISM.

Training generalists from LANL's Human Resources (HR) Division work with E Division managers and employees to identify specific training requirements for work being performed, establish appropriate programs, enhance quality, and assure continuity among all aspects of training. Training on standardized practices such as emergency operations is conducted on a LANL-wide basis. Site- and task-specific training is also provided for E Division projects and facilities. To assure an adequate safety envelope and compliance with laws and regulations, E Division facilities must produce

several operations plans and risk-reduction plans. Item 2.2 outlines these short- and long-term approaches and demonstrates the comprehensive measures used to ensure employee well-being.

One new key element of the training program is inclusion of Green Zia tools for environmental excellence. E Division helped in development of tools for NMED and piloted their early use. E Division now offers training in use of the tools and facilitation for Green Zia improvement process to its staff as well as other divisions and programs across LANL.

Both ESH Division and HR Division have developed formalized methods to solicit feedback from training participants, to evaluate that input, and to use it for continuous improvement of training.

5.2 Employee Involvement

A major emphasis in E Division is that every employee understand his or her role in achieving organizational and institutional goals, including those related to P2E2 performance. For example, the ISM implementation strategy developed for the division emphasizes, as its first principle, employee understanding and involvement. Division senior leaders offer employees a wide variety of ways to have an influence on how the division conducts business. For example, most managers have an open-door policy and encourage interaction with employees. Employees may also engage managers during management walkarounds and by participating in nested safety committees at various levels. The weekly email message *E Division Weekly News* encourages employees to submit suggestions for improvement or comments, and division all-hands meetings always include an open question-and-answer session.

The annual Employee Checkpoint Survey and the Upward Appraisal Program provide formal ways for employees to give anonymous input. Employees can also address environmental issues and questions to the division ISM Working Group, which meets weekly.

E-ESO has also established an electronic mechanism for soliciting employee input on P2E2 in product, service, and process design. Any LANL employee can send comments, observations, or questions to wastenot@lanl.gov. The message will be routed to the environmental expert best able to respond, the sender will be notified of any proposed action, and E-ESO will track the issue to resolution. For each other division or program office in LANL, E-ESO has also assigned one of its staff members as the single point of contact to whom employees may direct questions about waste minimization or request information related to P2E2.

Some E Division employees also belong to various Labwide committees such as Grassroots Safety Volunteers, Labwide All Days Are Safety Days, Institutional Ergonomics, and Laboratory Standards Working Group. These committees serve as a method for sharing ideas and initiatives related to ISM implementation across the institution.

Division employees also take advantage of institutional mechanisms to minimize waste. For example, when employees have supplies, equipment, and materials that are no longer needed, the property administrator assigned to E Division can ensure that it is re-used. Employees can also advertise unused equipment on the LANL electronic Swap Shop, where excess property is made available to the rest of LANL.

Suggestions from grassroots activities and teams is the primary method E Division uses to gain P2E2 improvements. The division thus relies on extensive employee involvement in both identifying opportunities for improvement and developing action plans. The division's Green Committee currently involves many employees from across the division, and this team has several environmental improvement projects under way. For example, projects include finding ways that the division can

- improve evaluation of vendors;
- increase use of onsite mass transportation (taxis and vanpools);
- adopt a stretch of highway;
- ensure two-sided printing on all division printers and copiers; and
- ensure full recycling of all solid sanitary waste streams in the division.

Senior leaders ensure that the division's human resources are properly aligned to carry out proposed action plans. The alignment process begins with the annual strategic planning update. Leaders develop long-term priorities and projections

and ensure that adequate resources are available. As projects evolve, leaders use quarterly or monthly reviews of action plan progress to ensure that resources continue to be adequately aligned.

E Division leaders communicate environmental information in a variety of ways. In addition to the normal flow-down of reports through regular all-hands and group meetings, managers devote specific attention to discussing Appendix F reviews, Employee Checkpoint Survey results, and Upward Appraisal feedback as those reports become available. The Upward Appraisal Program, in particular, sets specific expectations for managers to review feedback with subordinates and to develop action plans for improvement. Figure 5-2 shows the overall Upward Appraisal process; Figure 5-3 describes the process for using feedback.

E Division's efforts to impact the environmental and safety culture of the surrounding communities begins with the Laboratory Director's "Six Zeros" (see Item 1.1). One of the goals is to have zero injuries or accidents off the job. Thus, employees are expected to translate the LANL safety culture to their own homes and families.

Efforts to promote carpooling are an example of how E Division encourages employees to minimize the environmental impact of their work duties on the local community. In high-traffic areas of the Laboratory, LANL has established reserved parking for high occupancy vehicles. And the LANL daily *Newsbulletin* maintains an electronic "Commuter's Corner" where prospective carpoolers can advertise or look for ride-sharing opportunities. E Division all-hands meetings frequently include a drawing for door prizes (such as home fire extinguishers, energy-efficient light bulbs, or motion-detector light switches) that promote environmental responsibility or safety.

One key process by which division employees actively address community environmental issues is through coordinated volunteer efforts. The LANL Community Involvement and Outreach Office (CIO) is the focal point for such activities. Maintaining a list of over 400 potential LANL volunteers (including E Division employees), CIO matches volunteer interests with community activities. Opportunities for involvement are posted on the web at http://www.lanl.gov/orgs/cr/cr_ volunteerop.html and are distributed via monthly email. Additional volunteers are recruited year round, but especially at annual volunteer fairs. Although volunteer opportunities include a wide range of activities, from tutoring to foster care, many are focused on environmental issues. For example:

- In 2000, CIO coordinated employee involvement in community clean-up day in three surrounding cities: Los Alamos, Espanola, and Santa Fe.
- Following the Cerro Grande Fire in May 2000, between 200 and 300 LANL volunteers (including many from E Division) donated weekends to help with recovery efforts.
- In April 2001, LANL volunteers donated time to help the US Forest Service plant 12,000 seedlings as part of ongoing efforts to recover from the Cerro Grande Fire.

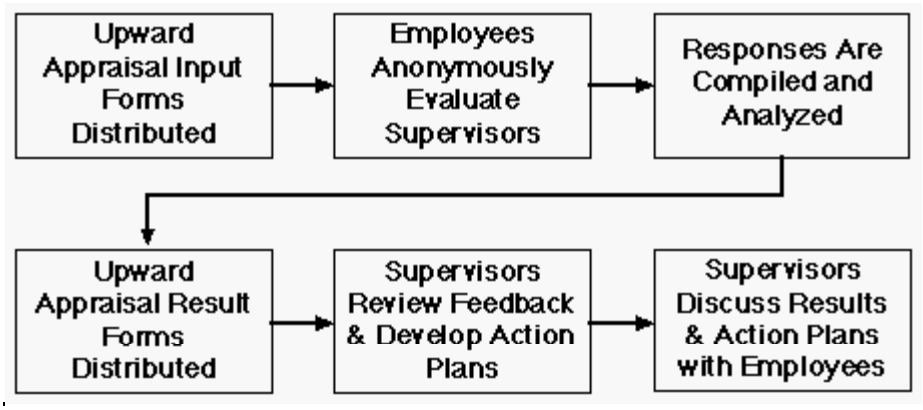

Figure 5-2. LANL's Upward Appraisal Process.

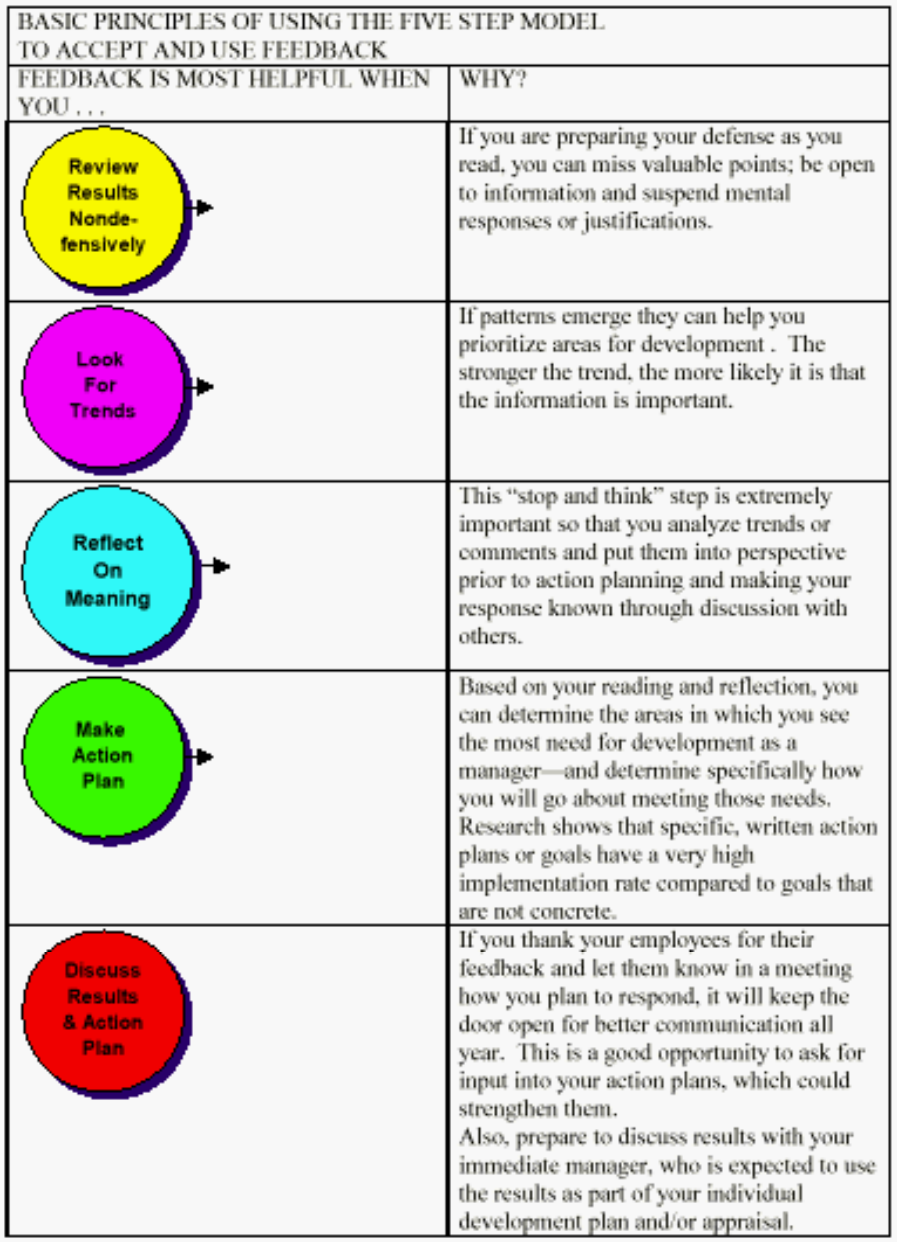

Figure 5-3. The five-step model for accepting and using Upward Appraisal feedback.

E Division has specifically encouraged employees to participate in significant local and regional environmental groups. In many cases, release time from work is granted for participation in these activities. Division employees serve on the Governor's Blue Ribbon Task Force on Water and on the Jemez y Sangre Water Planning Council (see Item 1.2). Over the past three years, with management encouragement, numerous E Division employees served as examiners for the Green Zia Program. As requested, division employees also provide lectures, demonstrations, and other support to area schools.

5.3 Employee Satisfaction, Value, and Well-being

E Division supports a safe work environment for employees and ensures that employees perform work safely and in an environmentally friendly manner by building on LANL safety programs such as ISM. Plans, procedures, and ISM-

articulated accountability assure workers of a safer and more predictable work environment. The ISM System also assures appropriate employee involvement in the design and use of safety and environmental systems during operations. The ISM System also assists managers in conducting monthly walkarounds in their areas, looking for and correcting ergonomic concerns and work-area hazards such as obstructed walkways, improper electrical usage, and violations of forklift safety or hazardous material handling. Safety also includes safety for the environment, and managers may choose to conduct walkarounds focused specifically on environmental issues. The ISM database tracks deficiencies identified during walkarounds until the deficiencies are resolved and compiles the deficiencies to identify and improve safety performance.

Furthermore, managers meet with employees to discuss individual safety commitments and hazards identified with each job. E Division employees may also enter and track their own safety issues through LANL's web-based Safety Concerns Program (see Item 4.1).

E Division's major formal method for determining employee attitudes and the climate in the workplace is the annual LANL Employee Checkpoint Survey, which has been used for the past six years. The survey contains standard types of questions in general categories including safety, productivity, and customer focus. A second major method is LANL's annual Upward Appraisal Program, which allows employees to provide direct feedback to managers regarding the supervisors' behavior and ability in areas such as ES&H; communication; and accountability. Division managers review the information from these instruments and use it to help establish goals and corrective actions.

E Division uses several institutional incentives to encourage staff to work smarter and utilize innovative approaches to accomplish their work. The Pollution Prevention Awards Program, sponsored by E-ESO, is open to all LANL employees and subcontractors. It is designed to encourage individuals and teams to develop plans, programs, or ideas for minimizing waste; conserving water, electricity or natural gas; reducing air or water pollution; or procuring products with recycled content. Recipients of the awards receive recognition and a cash grant from specially allocated congressional funds. The Los Alamos Awards Program and the Contractor Award Program, administered by LANL institutionally but tailored for application at the division or program level, provides a link between the organization's mission and operational goals such as ISM and those employees or teams that achieve significant accomplishments toward that mission. E Division managers use the program to recognize exceptional contributions and noteworthy achievements by awarding their employees, either individually or as teams, cash awards ranging from $250 to $2000.

As part of the larger LANL community, E Division relies primarily on institutional programs to enhance support for employees. LANL offers a comprehensive set of support initiatives along with feedback systems. Division employees are encouraged to use all LANL services that are appropriate and relevant to their individual needs.

- To provide emotional support, LANL provides an Employee Assistance Program (EAP) whose main goal is to assist employees with personal problems that are affecting their job performance. The EAP also offers a wide variety of presentations and workshops on such topics as stress management, gender issues, conflict resolution, and smoking cessation. The EAP also makes available a collection of books, videos, and audio tapes on workplace issues. The program is available free of charge. Usually employees refer themselves; however, a supervisor can refer an employee if job performance has been identified as a problem.
- For employees' physical well-being, LANL maintains a Wellness Center. The Center and its satellite areas offer equipment and specific areas for weight training and aerobic exercise in individual and group formats. Use of the center for individual exercise programs is offered free of charge. The center also provides, usually for a small fee, a wide variety of exercise and health programs including stress management, healthy eating, aerobics, yoga, and cardiovascular fitness. The center offers individual fitness evaluations for a nominal fee. The center monitors daily use numbers and has completed user satisfaction surveys along with participant evaluations.
- Division employees may choose between two basic work schedules, a traditional 5-day/40-hour week or a new 9-day/80-hour schedule which allows employees every other Friday off. In addition, E Division allows employees, with prior agreement of their managers, to use some flexibility in their regular work schedules to meet personal needs.
- LANL provides employees and managers formal guidance on administrative reviews and grievances. In addition to this formal support, the institution provides responses to informal queries as well as guidance to employees or management on relations in the workplace. Specific support is available on such subjects as counseling, sexual harassment, violence in the workplace, and interpersonal skills.

- An Ombuds Office, available to any individual in the workforce, provides services including addressing work-related issues, assisting employees in obtaining services, or expediting actions. The Ombuds Office also provides a Mediation Center—available to all members of the workforce—which provides a structured approach and environment to resolving issues between employees or between management and employees.

6 Process Management

6.1 Process Characterization and Control

Figure 6-1 details how E Division executes its mission. The center circle represents the Division's core business activities such as E-ER Oversight, E-WM Oversight, P2, etc. The circles surrounding the mission list common processes used to conduct Division activities. The lines extending from the circles identify how the Division carries out these processes. For example, the Division executes the Safety Management portion of E-ER oversight through guidance cards, management walkarounds, quality and ISM plans, and ISM Working Group meetings. In other words, the circles are the whats and the lines are the hows. The five whats are project management and execution, ISM, communications, continuous quality tools, and the human resources system. The following is a brief discussion of how each core activity is conducted.

One of the core mechanisms to manage the mission is project management and execution. Plan of the Day meetings and weekly group meetings are two examples of activities used to conduct this process. These activities help identify ES&H requirement, impacts, and issues. For example, the Transuranic Waste Characterization Project team had to meet the WIPP Waste Acceptance Criteria to ship waste. To meet the criteria, the team had to accomplish four objectives: 1) reduce the amount of plutonium-238 in each waste drum, 2) certify the amount of plutonium in each drum; 3) place the drums into standard waste boxes at one drum per box; and 4) remove all but one layer of confinement around the waste. During one management weekly meeting, the team developed a strategy to accomplish these objectives by repackaging waste. The idea will also reduce 140 cubic meters of TRU waste.

The ISM System provides a framework for line management in meeting the quality expectations for daily activities. For example, all new or revised projects must undergo an ESH-ID report (see Item 4.1). The ESH-ID process helps characterize these new or revised projects by providing a project profile that includes information related to

- administrative issues;
- purpose and type of project;
- location and site information;
- potential impact to site and facility systems;
- environmental factors; and
- safety and health factors.

Once the form is complete, representatives from ESH, E, FWO, and other Laboratory organizations review it to determine if the project should be executed. If they do not approve the project, the manager can change the project to meet the requirements or cancel it.

The division also uses continuous quality tools to identify ES&H issues and their possible solutions. For example, E-ER experienced repeated safety incidents during well-drilling operations. The division conducted a stand down, performed an internal assessment, and identified several safety issues. These actions allowed the division to rewrite several procedures to prevent future incidents.

Another process used to execute work scope—also key to integrating ES&H issues—is communications. The weekly ISM Working Group meetings ensure relevant issues pertaining to ES&H are identified and communicated throughout the division. *E Division Weekly News*, an email publication, highlights issues related to environmental performance, operational excellence, and worker safety. Similar information is communicated at division all-hands meetings and group meetings. Communication techniques for customers, suppliers, and other interested parties are addressed in Items 3.1, 3.2, and 3.3 respectively.

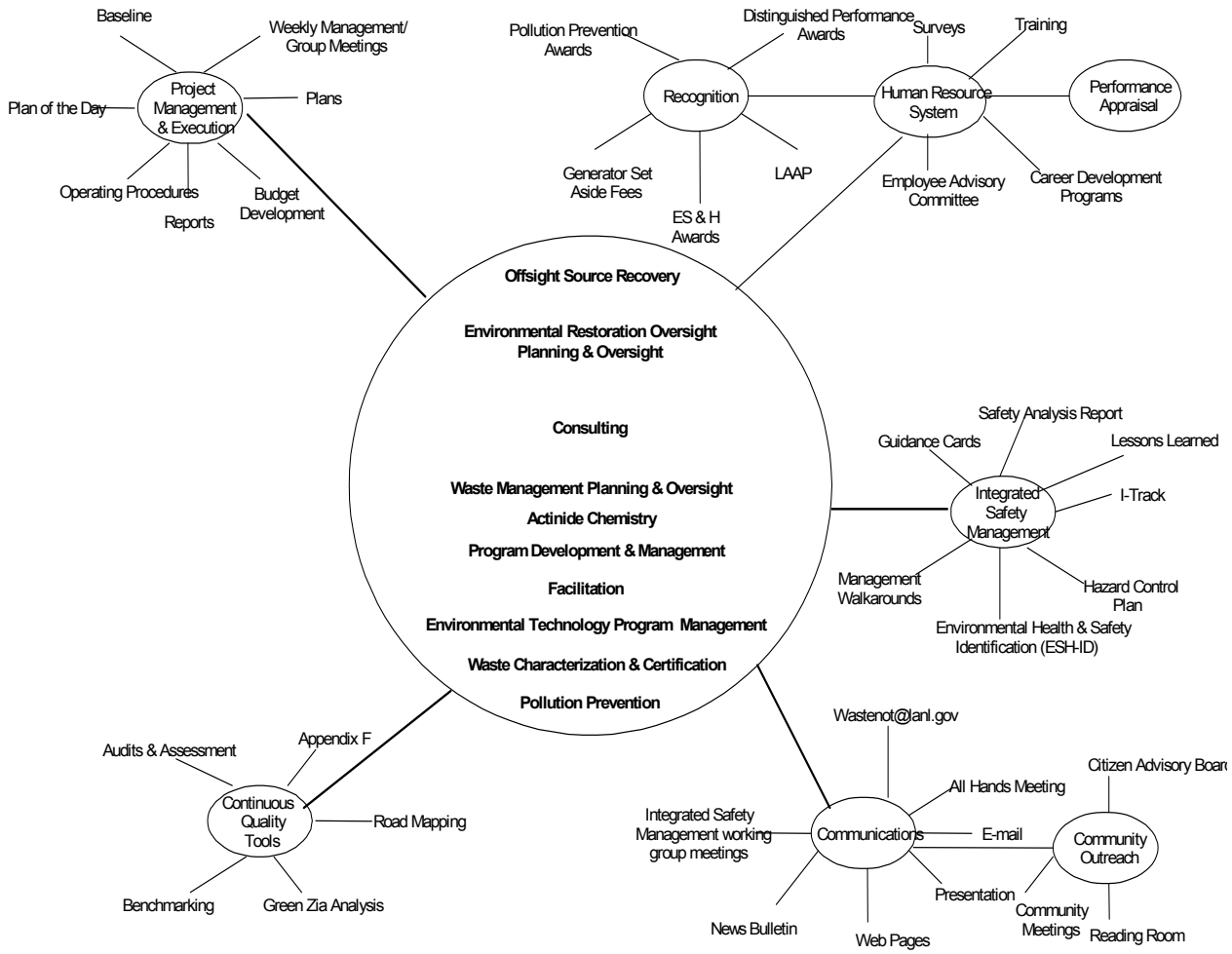

Figure 6-1. E Division's method for executing core business.

The human resource system helps E Division conduct its activities by creating processes for aligning work expectations, ensuring the capabilities of employees tasked with performing the work, and then using appropriate mechanisms to ensure accountability. As mentioned in Item 5.1, the Performance Management System shows employees how their work requirements contribute to the success of the entire organization and what job results are expected. The LANL training system, coupled with employee development plans, ensures that employees have the necessary skills and knowledge to safely perform work. And the annual performance assessment for workers provides direct feedback on how the organization views the quality of work performed.

Formal operational assessments for the division occur during monthly, quarterly, semiannual, or annual reviews, but leaders may also consider operational performance at any management meetings. E Division leaders use the wide variety of data described in Items 2.1, 2.2, 4.1, and 5.2—including P2E2 data from customers, employees, and operational reviews—to assess the performance of key processes. Customers are intimately involved in process evaluations. Employees provide operational evaluations through their plan-of-the-day meetings or other input to management. Both DOE and UC stakeholders are active participants in establishing performance expectations and in evaluating operational achievement through the Appendix F process (see Item 3.1).

The Appendix F process is one method by which division leaders may identify best practices and compare E Division performance with the performance of competitors.

6.2 Process Improvement

As previous text explains, E Division has a contractual mandate to continuously monitor and analyze processes for potential improvements. Use of Appendix F as a framework for process analysis and comparative evaluations is a mature, seven-year-old system that has yielded significant improvement in most areas reviewed. The division uses this process to continually renegotiate and improve environment, safety, and health goals. Improvements are fed back into the negotiation process yearly, and objectives are frequently heightened or raised.

In addition to the analysis and improvement carried out for Appendix F, the division uses the LANL framework of ISM to identify significant environmental performance issues. As shown in Figure 0-8, the fifth step of ISM is process improvement. All major E Division activities are reviewed in the context of "lessons learned" for effectiveness. This framework requires each division, including E Division, to assess its ES&H performance. Findings are institutionally reviewed by the LANL Feedback & Improvement Board (F&IB). The F&IB then provides institutional guidance for improvement efforts to all LANL organizations. At the division level, management becomes responsible for providing necessary resources to achieve improvement targets and for monitoring progress toward goals. Figure 6-2 summarizes this process.

Feedback from customers, stakeholders, and third parties also helps E Division managers determine priorities for continuous environmental improvement. For example, feedback reports from the division's participation in the Green Zia Awards Program provide a rich source of impartial, objective information. As a more specific example, E-ER recently worked with its major customer, DOE, to develop a new work baseline, which redefined its technical approach to the completion of cleanup activities. Under the revised approach, the Laboratory groups and schedules E-ER activities for potential release sites to restore an area based on watersheds. The Laboratory prioritizes E-ER work in these aggregates based on health risk reduction and uncertainty reduction (e.g., characterizing complex sites as soon as possible). The approach integrates human health, ecological, surface water, and groundwater considerations within a common decision framework. This approach provides for proactive, frequent interaction with regulators and stakeholders and real-time review of work by NMED.

The division also uses informal benchmarking or competitive comparisons to identify opportunities for improvement. For example, in cooperation with DOE, E-WMOSR has developed several performance objectives to achieve best-of-class ranking. By identifying Laboratory operations for future environmental improvements, reducing potential for shutdowns and fines, and improving productivity by minimizing wastes expensive to dispose, E Division has demonstrated the Laboratory's commitment to the best environmental practices. By benchmarking against baseline technology, E Division creates more environmentally sound products, processes, and services. Competitive comparison is particularly important for waste characterization processes because waste must be properly characterized before it is shipped and disposed at WIPP. The division has compared its waste characterization technology with that of private and public sector technology; the division's technology rated higher than any other.

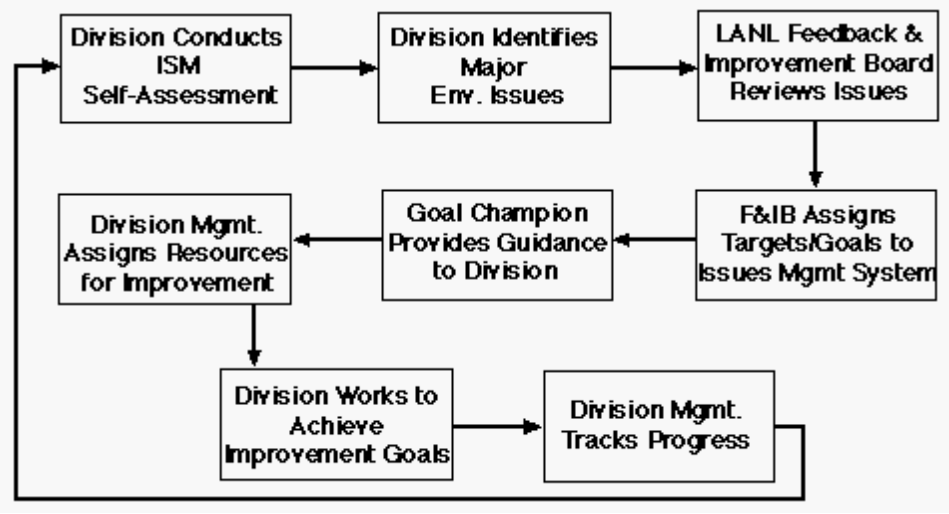

Figure 6-2. E Division's improvement process based on the LANL ISM self-assessments.

E Division also identifies improvement opportunities through the systematic but less formal method of discussions at weekly and daily meetings. These meetings provide employees and managers opportunities to discuss ES&H improvement ideas. For example, the Material Disposal Area P Closure Project, a remediation project undertaken by E-ER, involved removal of approximately 35,000 cubic yards of contaminated soil and debris from edges of Canon de Valle. At weekly and daily meetings, the E-ER team identified ways to reduce waste volumes through various recycling and reuse initiatives. These initiatives saved the Laboratory approximately $340,000. The team also prevented 3,660 cubic yards of soil, 2,600 cubic yards of concrete, and 1,800 cubic yards of scrap metal from entering waste steams.

Results from improvement efforts and compliance success are communicated to senior leaders at programmatic management sessions and as part of the Appendix F quarterly assessments. Appendix F assessments permit benchmarking against other UC-managed Laboratories. Employees learn about process improvements at the all-hands meetings and through information published electronically or as memos.

DOE learns of results through formal institutional lines of communication, and other stakeholders (vendors, the community) are informed through BUS contacts or by means of public affairs initiatives. Annual publications also provide stakeholders with updates on environmental performance. *For the Seventh Generation : Environment, Safety, and Health at Los Alamos National Laboratory* is an annual report prepared specifically for residents of communities surrounding LANL. The *Site-Wide Environmental Impact Statement Yearbook* and the annual *Environmental Surveillance Report* are other publications that evaluates LANL environmental performance and track progress toward established goals.

7 Results

7.1 Environmental Results

Appendix F results demonstrate environmental performance as well as customer satisfaction. As Item 3.1 outlines, E Division is the responsible LANL organization for seventeen Appendix F measures. Figures 7-1 through 7-17 present DOE scores for those measures. Although most measures show consistently high scores, problems did arise in the division's ability to handle and ship some waste on schedule. The resulting low scores (Figures 7-6, 7-7, 7-11, and 7-12) will be used to drive performance improvements this year. Similarly, in 1999 LANL received a low score for its ability to handle radioactive liquid waste (Figure 7-14), analyzed the problem, made necessary operational improvements, and returned to a high level of performance in 2000.

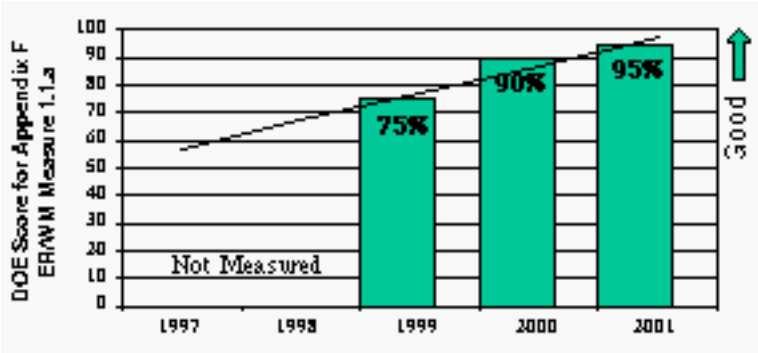

Figure 7-1. Appendix F score for progress in E Division's Environmental Restoration Project.

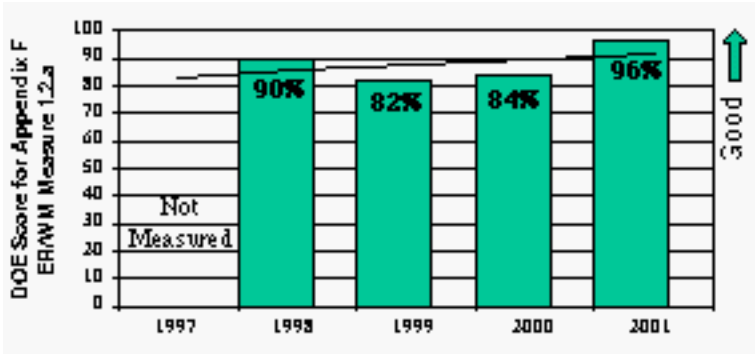

Figure 7-2. Appendix F score for cost variance in environmental restoration.

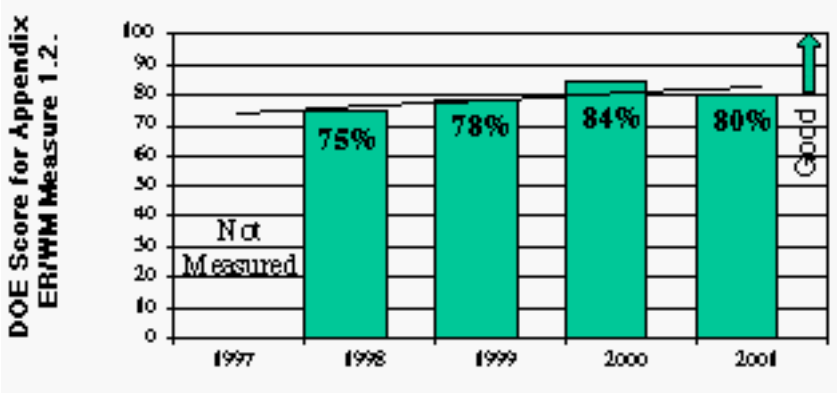

Figure 7-3. Appendix F score for environmental restoration program management cost control.

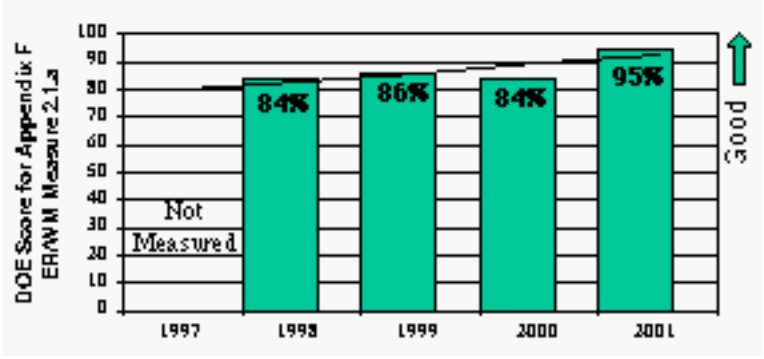

Figure 7-4. Appendix F score for cost effectiveness of legacy waste management program.

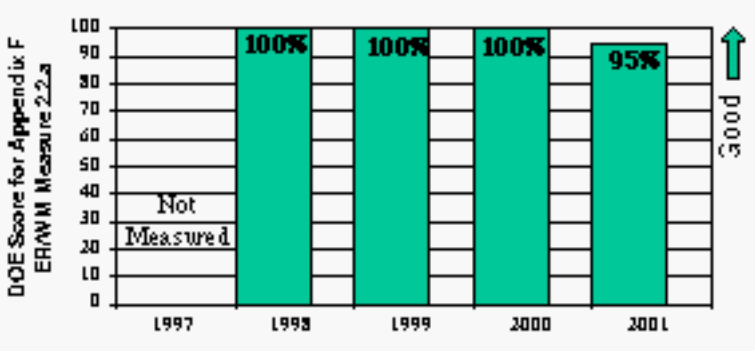

Figure 7-5. Appendix F score for reporting, treating, and disposing of legacy MLLW.

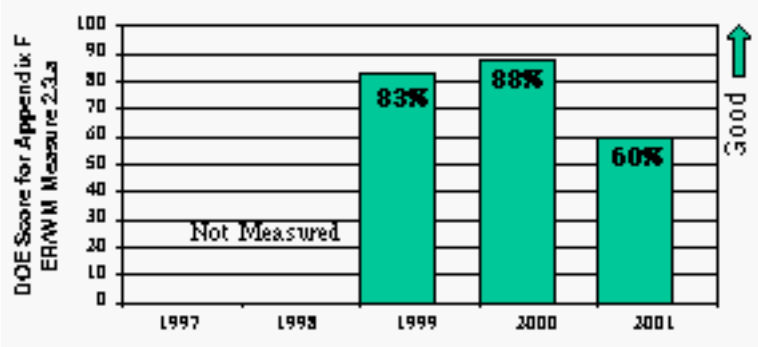

Figure 7-6. Appendix F score for ability to characterize TRU waste in preparation for disposal.

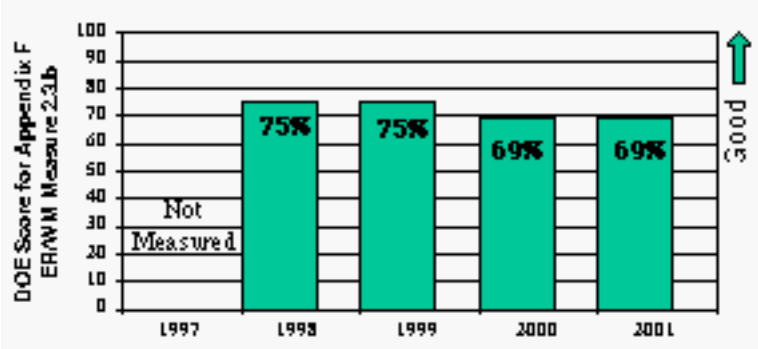

Figure 7-7. Appendix F score for actual processing of TRU waste for shipment to WIPP.

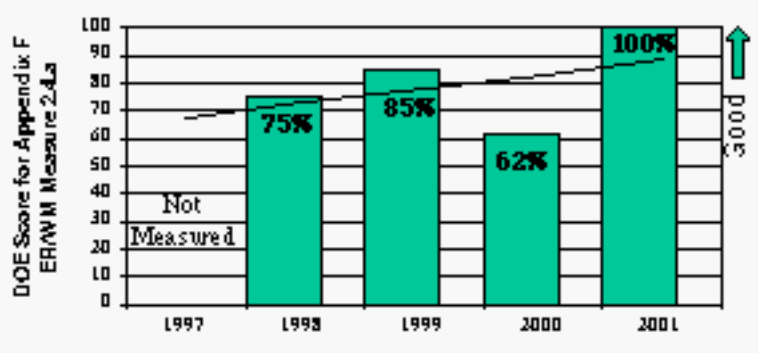

Figure 7-8. Appendix F score for performance of the Transuranic Waste Inspectible Storage Project (retrieval of buried waste containers for characterization and disposal).

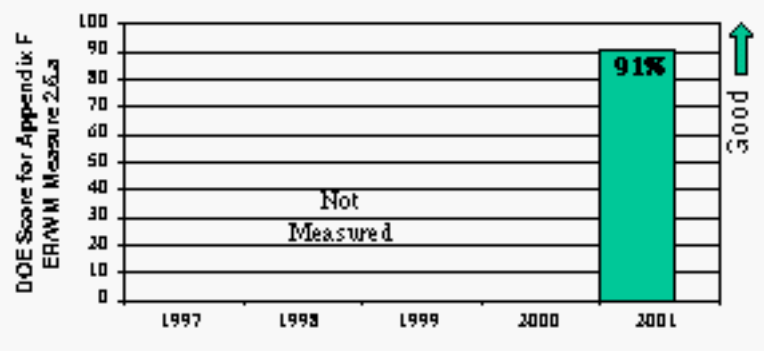

Figure 7-9. Appendix F score for performance of Off-Site Source Recovery Project.

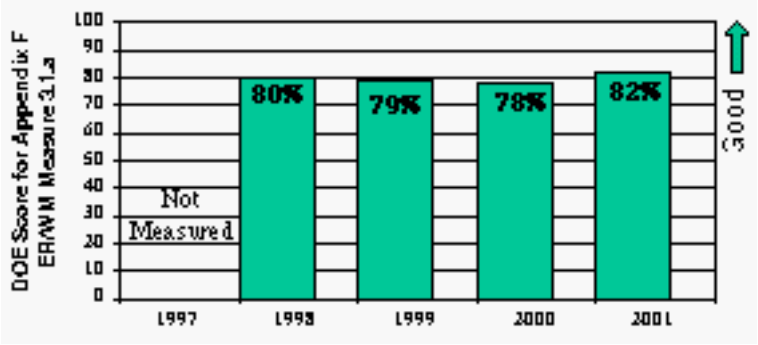

Figure 7-10. Appendix F score for work tracking and cost savings in handling of nondefense waste.

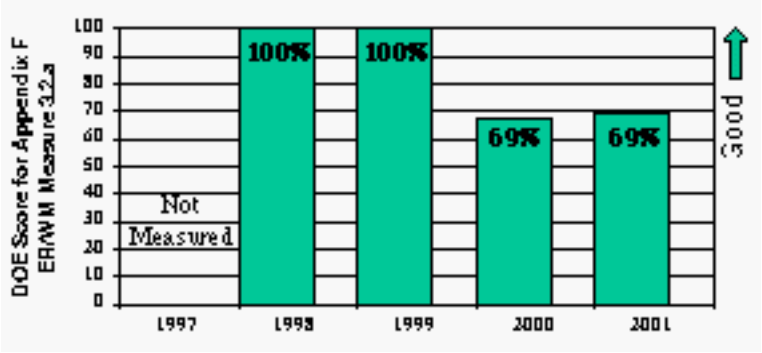

Figure 7-11. Appendix F score for treatment and disposal of newly generated MLLW.

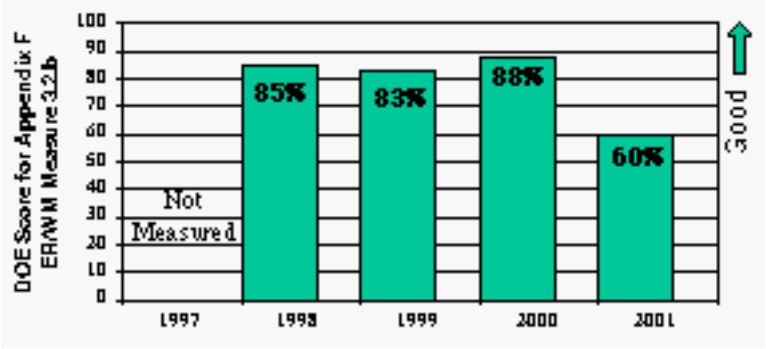

Figure 7-12. Appendix F score for certification of nondefense TRU waste.

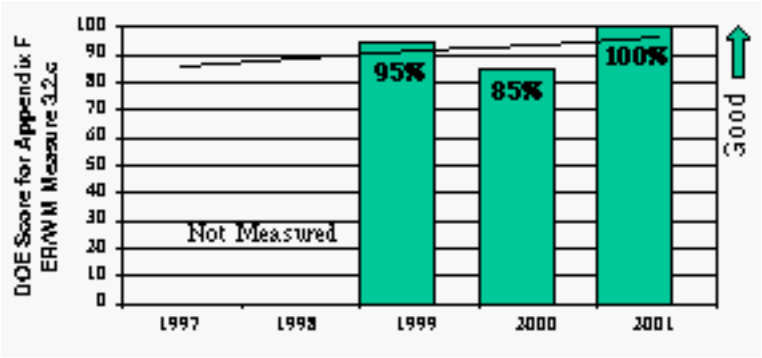

Figure 7-13. Appendix F score for proper storage of nondefense TRU waste.

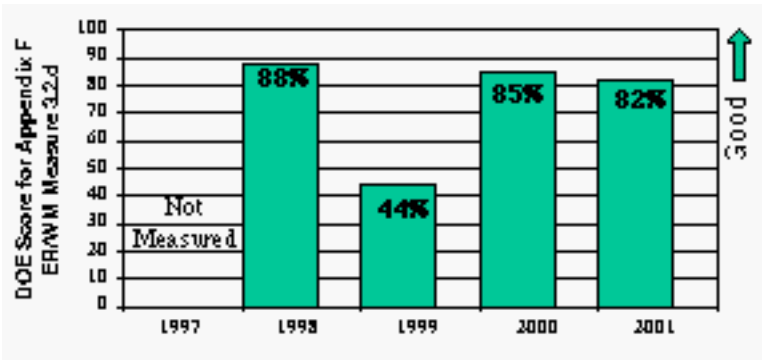

Figure 7-14. Appendix F score for handling of radioactive liquid wastes.

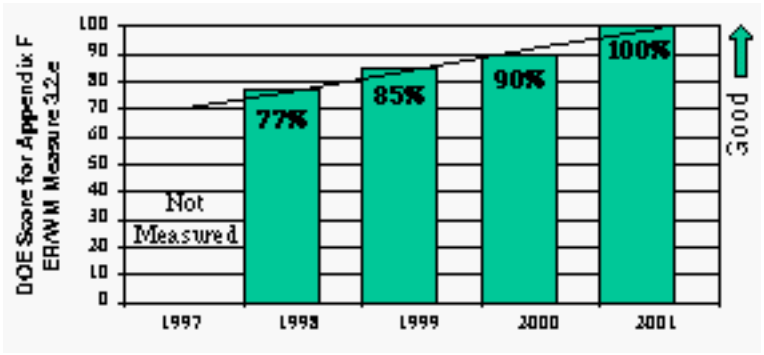

Figure 7-15. Appendix F score for handling of nondefense LLW.

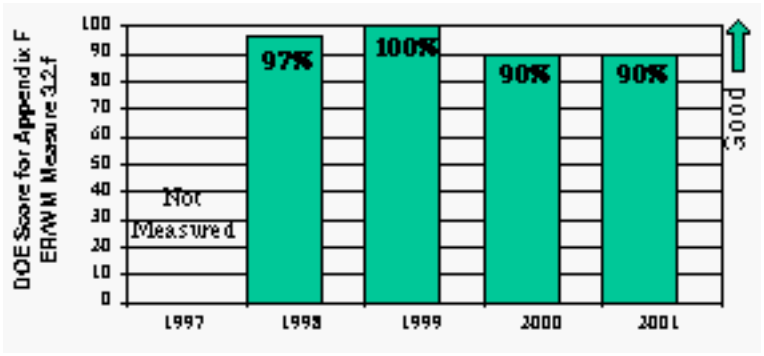

Figure 7-16. Appendix F score for handling of chemical and hazardous wastes.

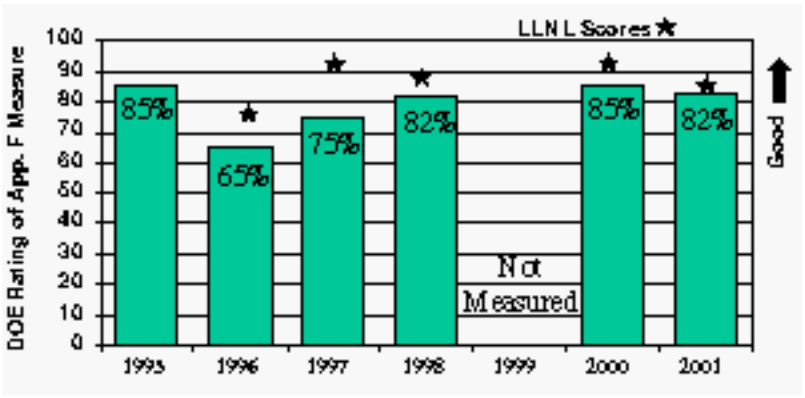

Figure 7-17. Appendix F score for waste minimization, affirmative procurement, and conservation of natural resources.

E Division also makes significant contributions to overall LANL performance on several other performance measures. Figures 7-18 to 7-25 show these LANL scores, which include E Division contributions. In most cases, E Division's contributions cannot be precisely determined. For example, LANL infrastructure limitations prevent the division from identifying a unique, quantifiable contribution to the measure related to utility usage. In most cases the LANL scores demonstrate sustained high levels of performance. Where appropriate, the graphics also show LANL performance relative to LLNL, a comparison that provides the basis for some competitive analysis.

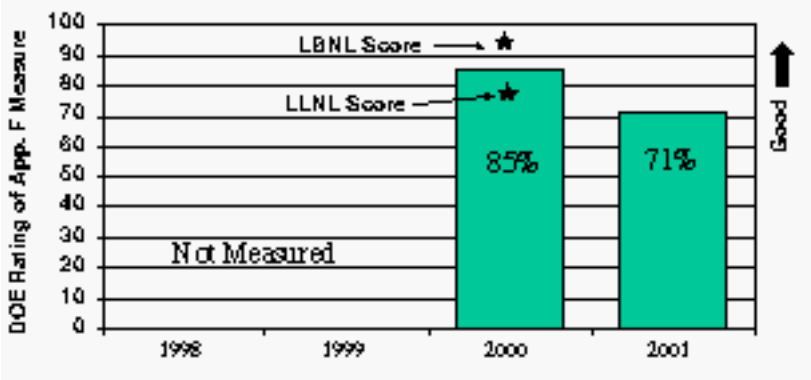

Figure 7-18. LANL performance, to which E Division contributes, on the Appendix F measure related to ISM implementation.

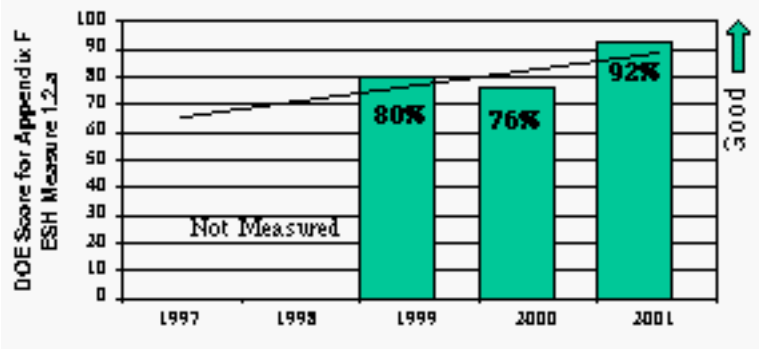

Figure 7-19. LANL performance, to which E Division contributes, on the Appendix F measure related to overall environmental performance.

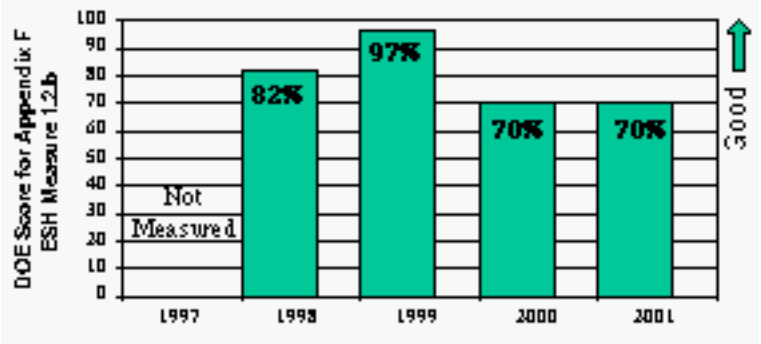

Figure 7-20. LANL performance, to which E Division contributes, on the Appendix F measure related to radiation protection of workers.

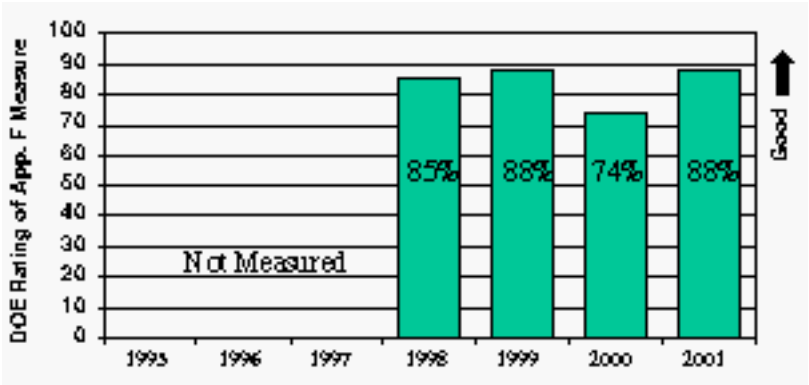

Figure 7-21. LANL performance, to which E Division contributes, on the Appendix F measure related to conduct of management walkarounds.

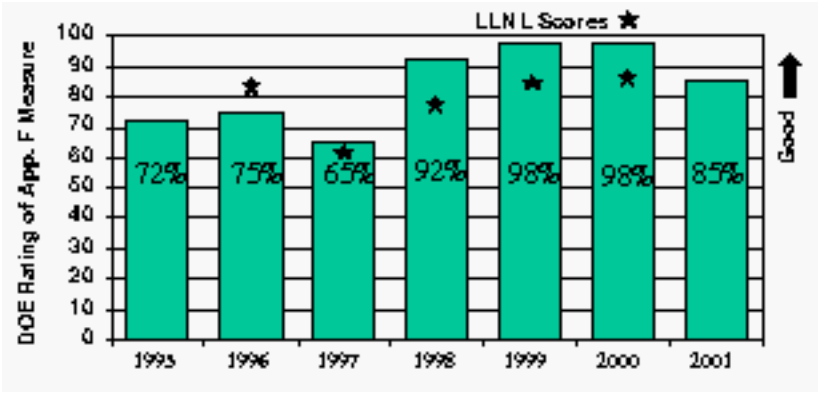

Figure 7-22. LANL performance, to which E Division contributes, on the Appendix F measure related to accident and injury prevention.

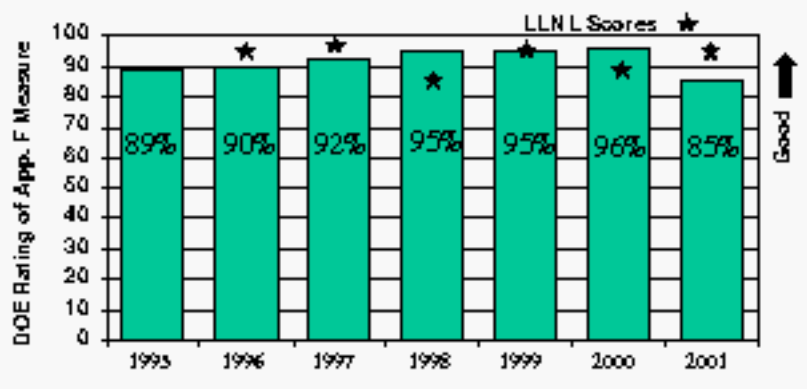

Figure 7-23. LANL performance, to which E Division contributes, on the Appendix F measure related to utility use and energy conservation.

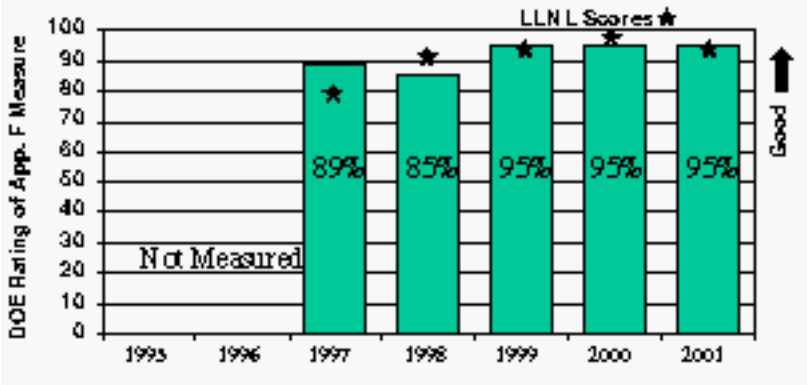

Figure 7-24. LANL performance, to which E Division contributes, on the Appendix F measure related to management of suppliers.

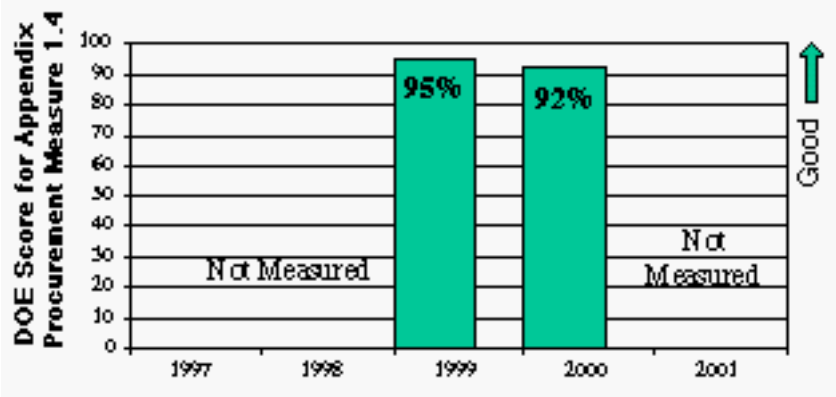

Figure 7-25. LANL performance, to which E Division contributes, on the Appendix F measure related to socioeconomic regional development.

Figure 7-26 shows E Division's performance related to affirmative procurement. This is a LANL-wide effort to purchase products with recycled content. In 1998 the division's overall rate was 38%; by 2002 the rate has improved dramatically to 78%.

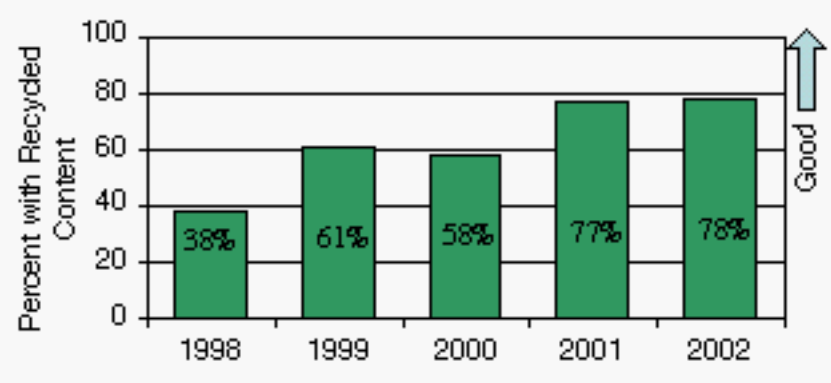

Figure 7-26. E Division's purchase of material with recycled content.

Figure 7-27 shows the amount of mail and other material recycled as part of LANL's highly successful program, Mail Stop A1000 (see Item 1.2). Employees from E-ESO worked with BUS Division to establish this program. E Division employees, as well as employees from across the institution, use this mechanism to recycle unwanted mail rather than dispose of it in the landfill.

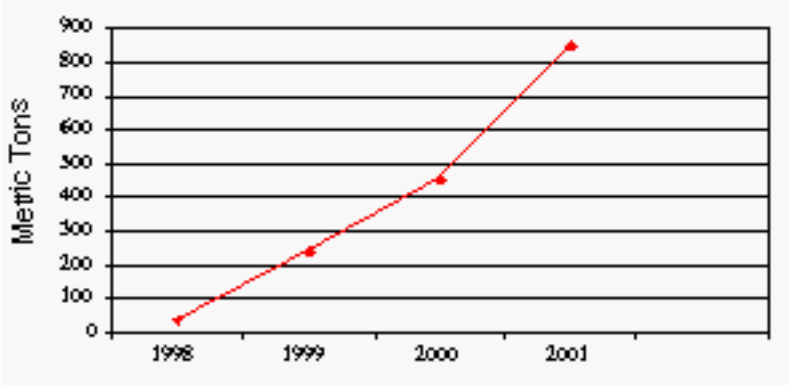

Figure 7-27. Cumulative amount of recycled mail and other printed material from LANL's Mail Stop A1000 program.

E Division closely monitors its injury/illness rate through several measures. Figure 7-28 shows the division's total recordable incident (TRI) rate and lost workday case (LWC) rate compared with the overall LANL rates for the past year. As the figure shows, safety problems have decreased during the past year. E Division TRI and LWC rates are both at zero, significantly lower than LANL's overall average and demonstrating the effectiveness of the division's safety efforts.

Figure 7-29 shows the effectiveness of management safety walkarounds within E Division. Senior leaders aim to accomplish 100% of the expected walkarounds, and for 2000 and 2001 the totals were significantly higher than required. Figure 7-30 shows the percentage of 2001 walkarounds for both E Division and LANL as a whole that specifically targeted environmental aspects of operations.

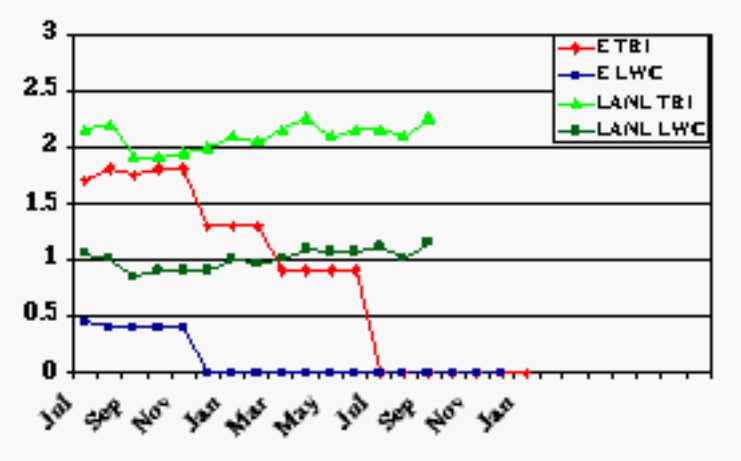

Figure 7-28. Twelve-month rolling average for employee injuries/illnesses.

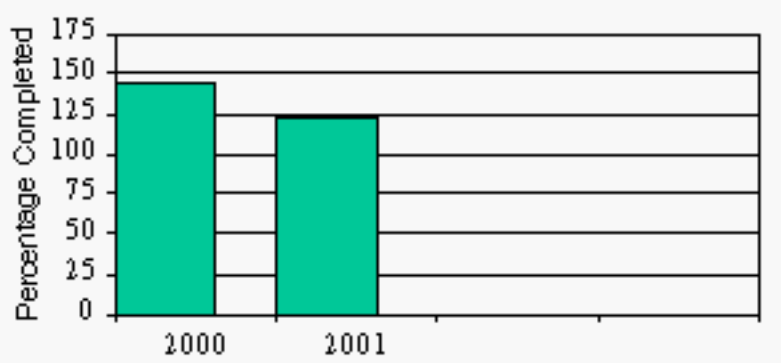

Figure 7-29. Percentage of required E Division management walkarounds.

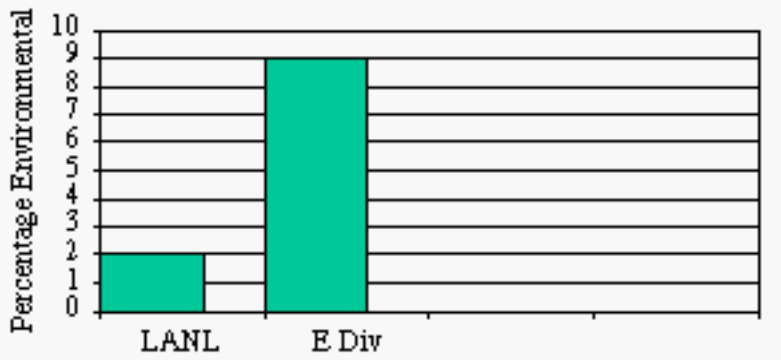

Figure 7-30. Percentage of 2001 walkarounds that specifically targeted environmental components of operations.

7.2 Customer, Supplier, Employee and Other Results

Figures 7-31 through 7-36 show the division's scores in six areas of the Employee Checkpoint Survey: career development, safety, diversity, communication, performance management, and productivity. The charts show the percentage of employees who gave the division favorable or neutral scores. For the past three years division scores for all three area have remained consistent with overall LANL scores. These annual measures of employee satisfaction

provide E Division senior leaders with direct input on employee concerns related to environmental issues. This survey was not conducted in 2000 because of the Cerro Grande fire.

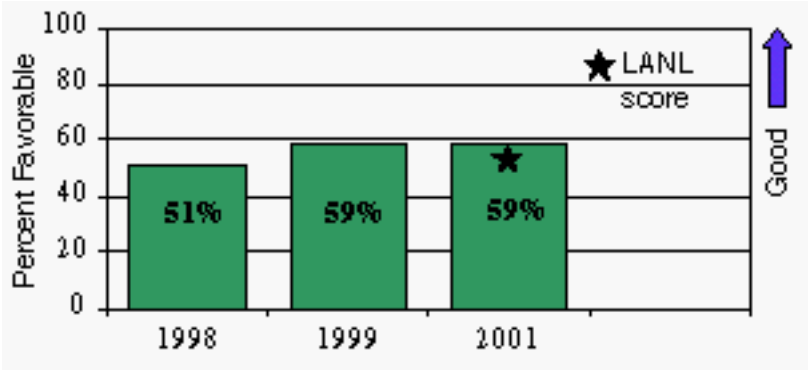

Figure 7-31. E Division's Employee Checkpoint Survey scores related to career development.

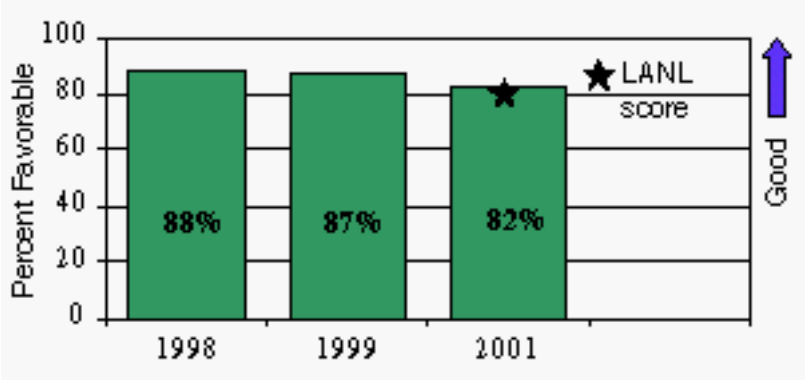

Figure 7-32. E Division's Employee Checkpoint Survey scores related to safety.

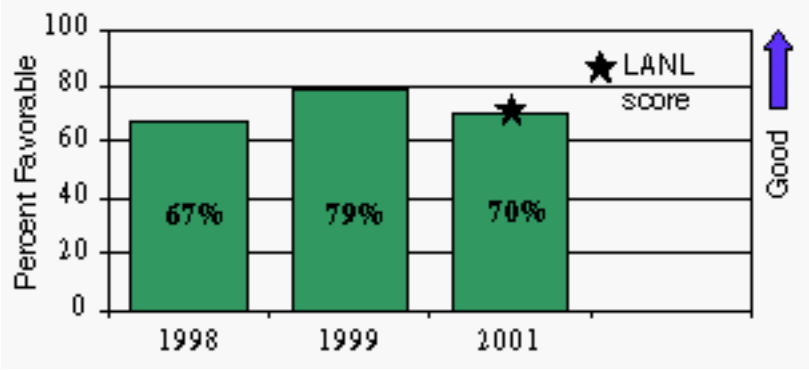

Figure 7-33. E Division's Employee Checkpoint Survey scores related to diversity.

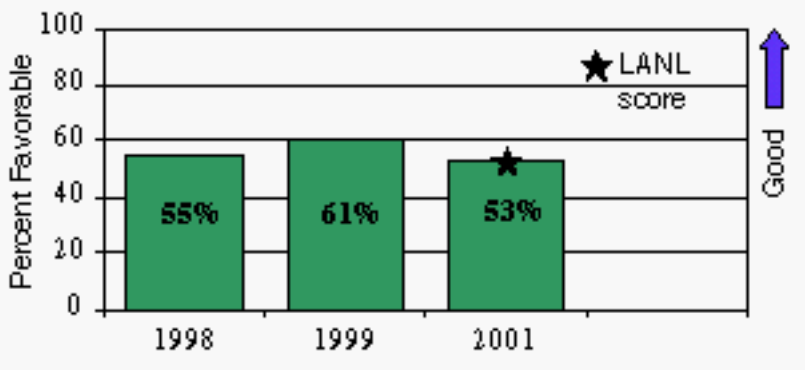

Figure 7-34. E Division's Employee Checkpoint Survey scores related to communication.

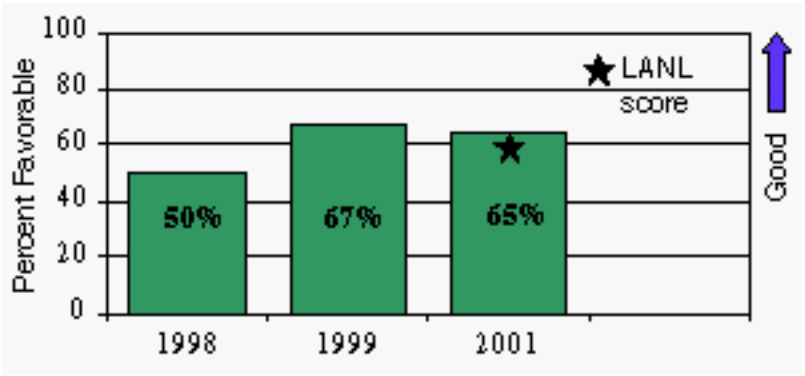

Figure 7-35. E Division's Employee Checkpoint Survey scores related to performance management.

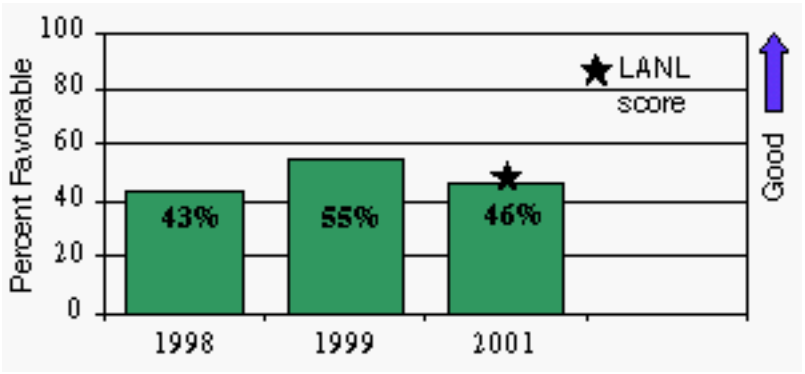

Figure 7-36. E Division's Employee Checkpoint Survey scores related to productivity.

Like LANL itself, E Division uses the Appendix F Process as a key way to identify customer requirements and to gather feedback regarding customer perception of division performance. The Appendix F graphics in Item 7.1 (Figures 7-1 through 7-25) also serve as measures of customer satisfaction for DOE, the division's major customer.

Figure 7-37 shows the number of safety- and environmental-awareness articles published in both *E Division Weekly News* and the *LANL Daily Newsbulletin*. The division considers this measure an indicator of level of effort spent to help inform and educate two sets of internal customers—division employees and employees in other LANL organizations. Another measure the division uses to gauge its impact on LANL as a whole is the growing interest in the Green Zia Program. Because E Division encourages and coordinates institutional participation, this measure is a direct reflection

of the division's success in creating support and enthusiasm. Figure 7-38 shows the steady increase in the number of LANL employees whose organizations are involved in performing Green Zia self-assessments.

Figure 7-39 shows trends in public perception of LANL's environmental performance. Scores are consistently very high. Information in this particular format is not available after 1998 because LANL changed the survey questionnaire. In the new survey, which is administered annually to community leaders, environmental performance is not specifically addressed. Several open-ended questions do allow respondents to raise topics of concern. Figure 7-40 shows results for three years indicating the percentage of leaders who view LANL favorably. Again, these scores are very high, indicating strong support for LANL and E Division from the general public.

A final key measurement that E Division senior leaders monitor to evaluate levels of environmental performance is the result of participation in the New Mexico Green Zia Environmental Excellence Awards Program. Because 2001 is the third year E Division has participated in this program, feedback results from these assessments help division leaders evaluate continuous improvement and areas for increased emphasis.

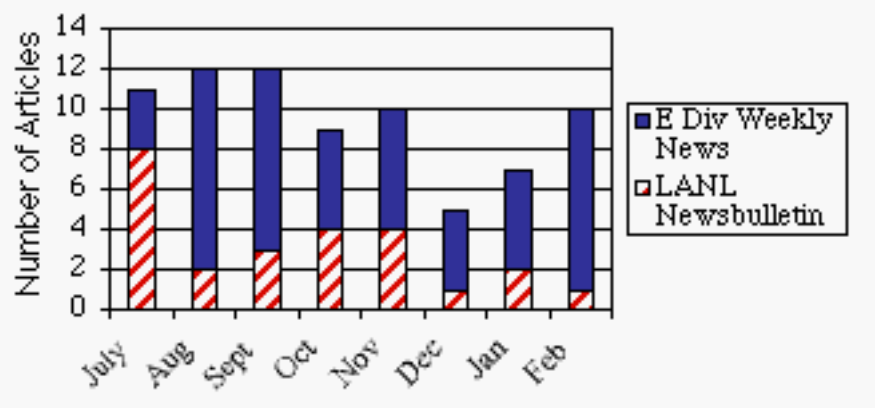

Figure 7-37. The number of safety- and environmental-awareness articles published.

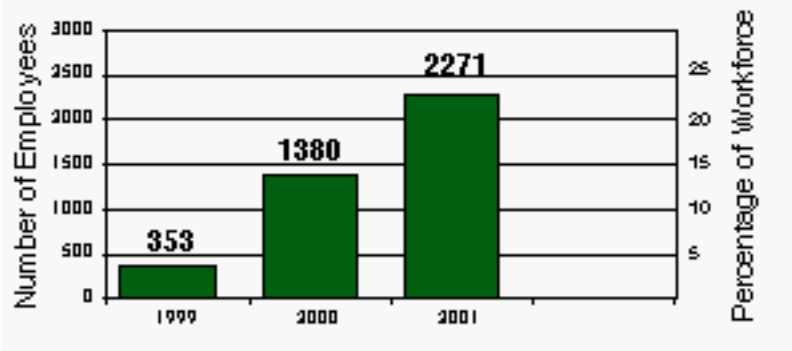

Figure 7-38. The number and percentage of LANL employees whose organizations participate in Green Zia self-assessments.

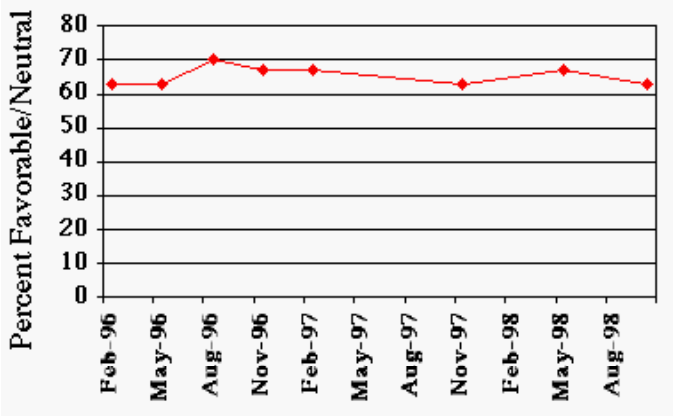

Figure 7-39. Percentage of NM residents who view LANL environmental performance as favorable or neutral.

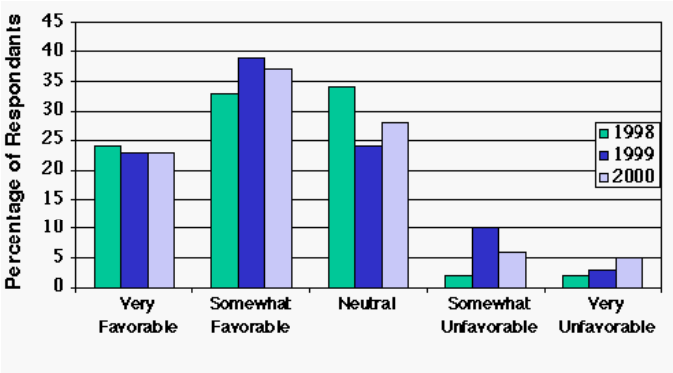

Figure 7-40. Community leaders' view of LANL.

7.3 Financial Results

E Division has identified several specific areas in which environmental performance drives financial results. For example, the division's effective, efficient use of taxpayer dollars is important. These types of measures, shown in Figures 7-41 to 7-43, relate cost and performance. Data related to current performance and trends are available for some of those areas. In other areas, E Division senior leaders are awaiting improvements in LANL infrastructure capabilities to identify specific measurement opportunities.

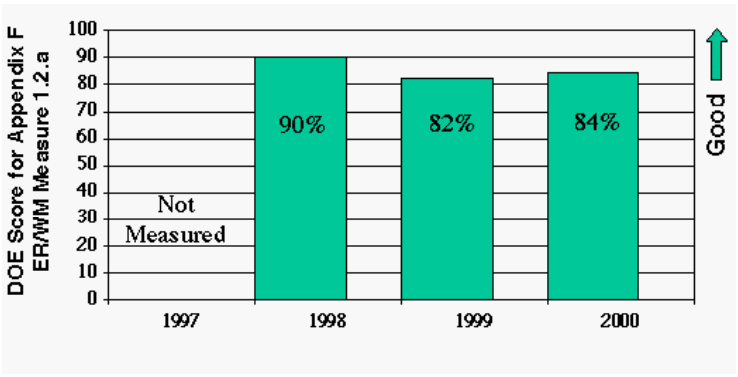

Figure 7-41. Appendix F score for Environmental Restoration cost variance, showing ability to perform work on schedule.

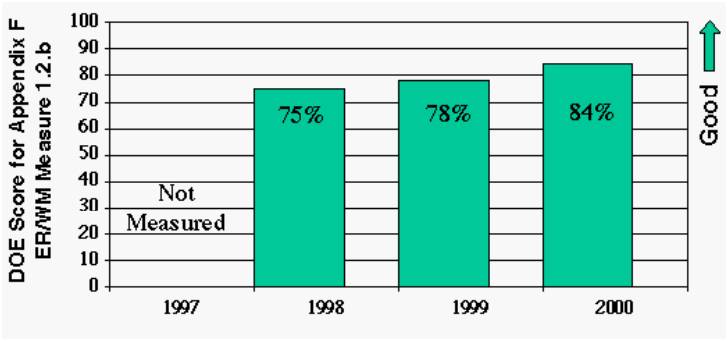

Figure 7-42. Appendix F score for cost control in the Environmental Restoration Project.

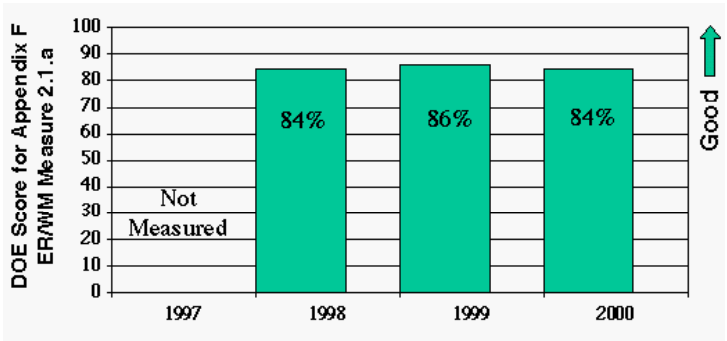

Figure 7-43. Appendix F score for cost effectiveness in E Division's Waste Management Program.

An example of the impact of E Division's promotion of pollution prevention policies on the institutional bottom line is the solid sanitary waste recycling program. The recycling rate was 41% for all of FY01 and 75% for the first quarter of FY02. Table 7-1 shows the revenue streams LANL realizes from recycling instead of disposing of certain classes of sanitary waste—white paper, MA A1000 junk mail, cardboard, concrete and asphalt, brush, and soil. Cost savings from these six categories of waste accounted for $566,400 in FY01 alone. (See Figure 7-44.)

Table 7-1: Quantities of Recycled Material from Six LANL Waste Streams and Associated Cost Savings

Waste Stream	Disposal	Recycle	Year	Amount	Disposal Costs	Recycle	Costs Avoided

	Costs ($/MT)*	Costs ($/MT)**		Recycled (MT)	Avoided ($1000)	Costs Incurred ($1000)	less Costs Incurred ($1000)
White Paper	700	388	FY99	168	117.6	65.2	52.4
			FY00	167	116.9	64.8	52.1
			FY01	217	151.9	84.2	67.7
MS A1000	700	200	FY99	204	142.8	40.8	102.0
			FY00	213	149.1	42.6	106.5
			FY01	397	277.9	79.4	198.5
Cardboard	700	266	FY99	146	102.2	38.8	63.4
			FY00	215	150.5	57.2	93.3
			FY01	319	223.3	84.9	138.4
Concrete, Asphalt	95	26	FY01	730	69.4	19.0	50.4
Brush	95	17	FY99	250	23.8	4.3	19.5
			FY00	313	29.7	5.3	24.4
			FY01	100	9.5	1.7	7.8
Soil	95	5	FY01	1151	109.3	5.8	103.6

* based on prevailing rates as of this writing

** includes direct expenses for collection and processing by LANL and haulage fees charged by consignee

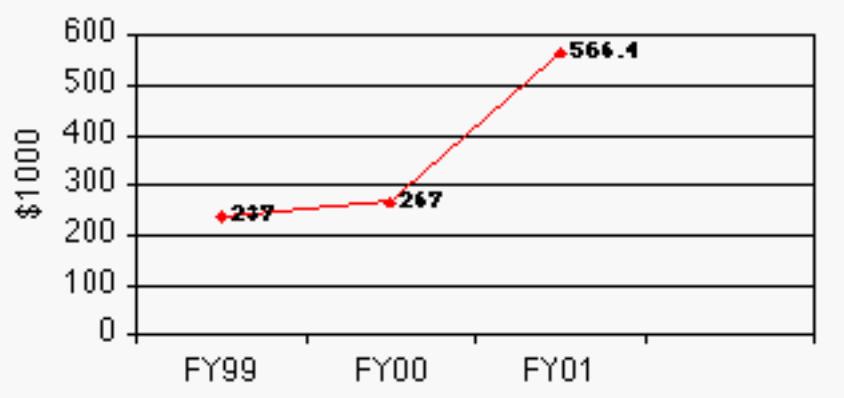

Figure 7-44. Total LANL revenues accruing from recycling vs. disposal in six waste streams.

Acronyms

BUS	Business Operations Division
CAB	Citizens Advisory Board
CIO	Community Involvement and Outreach Office
DOE	Department of Energy
E2	energy efficiency
E	Environmental Science and Waste Technology Division
E-ER	Environmental Restoration Project
E-ESO	Environmental Stewardship Office
E-ET	Environmental Technology Group
E-ST	Environmental Science & Technology Group
E-WM	Environmental Waste Management Group
EAP	Employee Assistance Program
EPA	Environmental Protection Agency
ES&H	environmental, safety, and health
ESH	Environment, Safety, and Health Division
ESH-ID	environment, safety, and health - identification
F&IB	Feedback & Improvement Board
FM	facility manager
FWO	Facility & Waste Operations Division
GSAF	Generator Set-Aside Fee
HR	Human Resources Division
ISM	Integrated Safety Management
JCNNM	Johnson Controls Northern New Mexico
LAAO	Los Alamos Area Office
LANL	Los Alamos National Laboratory
LBNL	Lawrence Berkeley National Laboratory
LIR	Laboratory Implementation Requirement
LLNL	Lawrence Livermore National Laboratory
LLW	low-level waste
LPR	Laboratory Performance Requirement
LWC	lost workday cases
MLLW	mixed low-level waste
NMED	New Mexico Environment Department
NMFA	Nuclear Materials Focus Area
P2	pollution prevention
RCRA	Resource Conservation and Recovery Act
SAR	Safety Analysis Report
SBO	Small Business Office
TRI	total recordable incidents
TRU	transuranic
UC	University of California
WIPP	Waste Isolation Pilot Plant